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ABSTRACT

San Elizario, Texas, is a border community with a high poverty rate, overcrowded school conditions, and a 60% limited English proficiency (LEP) rate among school students. In 1984, the school district began a cooperative university and school system project to improve Hispanic LEP students' achievement through applied computer technology. In 1987-88, the project provided computer assisted instruction in mathematics, language arts, and computer literacy to 119 students in grades 1-6 and 9-12, plus science and social science to older participants. A comparison of October 1987 and April 1988 standardized test scores showed improvement for most grade levels. The greatest reduction in the gap between participant scores and national norms occurred at grade 11 for composite scores (29%), reading (48%), and language arts (25%), and at grade 6 for mathematics (81%). Questionnaires completed by school administrators and project staff indicated that, compared to their counterparts, project students had lower absentee, dropout, and retention rates, were less in need of specialized services, and were more likely to pursue postsecondary education. Classroom observers found capable teachers providing up to date instruction in appropriate environments, eager and well behaved students, and good rapport between project staff and other school staff. But observers also noted project weaknesses in the infrequent use of native language and home culture materials during instruction. Extensive appendices include questionnaires and observer surveys used; curriculum outlines; software, hardware, and computer book inventories; and standardized test scores and statistics. This report contains 15 references. (SV)

ED303286

FOURTH YEAR EVALUATION REPORT

FOR

The San Elizario Bilingual Learning Community: An Application of Technology to Reading/Writing/Mathematics/Computer Literacy

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Part I

Introduction

General Description of the School District

San Elizario Independent School District is located approximately fifteen miles east of El Paso, Texas, and Ciudad Juarez. It is situated less than three miles from the Rio Grande which forms the border between the United States and Mexico. The school district is the oldest in the state of Texas dating from 1901. The community of San Elizario is essentially an agricultural area and poor even by border standards. In 1987, the district was ranked second from last, out of 1,064 school districts in the state in assessed valuation. The assessed valuation in 1987-88 is approximately 37.4 million dollars. The population of the community is at or above ninety-nine percent Hispanic. By all measures the bulk of the families in this area are at or below the poverty level by United States standards (Stoddard & Hedderson, p. 34). In addition, the district already crowded with 1,232 students (1987-88) is expecting an enrollment increase of 200 students next school year. It should be mentioned that while in some respects San Elizario appears to be like other border communities, there is present a very stable core of Hispanic families, many of these going back several generations. Because of the lack of funds, districts like San Elizario are being left behind in training their students to compete in an advancing technological society. Minority students, clustered as they often are in low income school districts, are especially impacted upon by the lack of such training. Recent reports in the regional and national press indicate another problem in San Elizario and its neighboring communities. Simply, there is a strong indication that the water supply in these border communities is polluted to the extent that these communities are not unlike many "third world" countries. An extensive medical/dental study has just been completed and released June 6, 1988. For a brief review of this, see Part III of this report.

Nature of the Project:

In 1984, San Elizario Independent School District applied for and received a grant from the United States Department of Education under the Bilingual Education Program for the purpose of a cooperative university/school system project intended to demonstrate an improvement in the achievement of Hispanic Limited English Proficient (LEP) students in the areas of reading, writing and mathematics by means of applying computer technology. The district has since added other subjects. The application of computer technology specifically relates to teaching the students use of word processors.

In addition, the school district was to serve as a model for other similar communities. Through the university/district cooperation and collaboration, it was anticipated that among other things the success or failure of the project would be disseminated.

Evaluation of the Project

The evaluation of the project has been in the hands of a team from New Mexico State University since the original proposal was granted in 1984 to the school district. While there have been changes in the membership of the team, one of the present members has been involved in the evaluation process since the beginning. As in past years, this report will focus essentially on the following components or measures.

I. Qualitative

   A. Community/Parent involvement and support of the project.

   B. The district's commitment to the project.

   C. Teacher and staff attitudes toward the project.

   D. Extensive observation of the classrooms and students involved in the project.

   E. Other activities of the district such as the training of staff involved in the project, dissemination of the project as a model through university/district collaboration and inventory of supplies related to the project, hardware and software.

II. Quantitative

A review will be made of the progress, or lack thereof, that students in the project have made. To accomplish this, pre- and post-test scores from the Science Research Associates (SRA), Survey of Basic Skills (SBS), and the Language Assessment Scales (LAS), were used. In the case of the former, a Gap Reduction Model modified (GRM-modified) will be used to explain achievement, or lack of it, on the part of the students in the project.

Part II

Review of Appropriate Literature

General Background:

For the material in this section, we found two valuable repositories of information namely in unpublished technical reports. Both are located at New Mexico State University. The first is the Joint Border Research Institute (JBRI) and the second, The Educational Resources Information Center/Clearinghouse on Rural Education and Small Schools (ERIC-CRESS).

In the JBRI library, two general sources were obtained as background on border society. One is the Borderlands Sourcebook: A Guide to the Literature on Northern Mexico and The American Southwest, edited by Ellwyn Stoddard and others (1983) and Trends and Patterns of Poverty Along the U.S.- Mexico Border, by Ellwyn Stoddard & John Hedderson (1987). In the former source the chapter entitled "Education" by Celestino Fernandez was especially helpful.

Taken together these sources confirm our observations. Compared to Anglos, there is substantial poverty among Hispanics, which is not a new phenomenon. In addition, in school districts on the U.S. side of the border, the dropout rate among Hispanics is considerably higher than Anglos at the junior and senior high school level. Certainly this project is aimed at reversing that dropout rate and equipping those students who graduate from high school with skills necessary to compete in North American society.

Two documents that have been of importance to this and past evaluations are: Instructing Children with Limited English Ability: Year One Report of the National Longitudinal Evaluation of the Effectiveness of Services for Language Minority Limited English-Proficient Students by Malcom Young, et al., (1986) and Applying Significant Bilingual Instructional Features in the Classrooms by William Tikunoff (1985). Both of these sources have been of use in structuring our evaluation process (see Introduction and Parts III and IV for complete examination of the components evaluated; copies of questionnaires, observation forms and the like are to be found in the Appendix).

Other Similar Programs:

After doing an ERIC search, we found thirteen entries that were useful in various respects in relation to the project at San Elizario. Three are journal articles and the rest fugitive documents (technical reports). Most of the entries dealt with bilingual programs related to English/Spanish while a few dealt with other languages such as Native American dialects, Vietnamese, French, Portuguese, and Chinese. Before examining the six components considered in our evaluation process, some general notions from these documents should be mentioned.

A 1985 report indicated that while there have been computer projects in various foreign languages, there have been few in bilingual education and fewer still at the high school level in the subject areas of the project under evaluation (New York Board of Education, Brooklyn, N.Y. Office of Education Evaluation). Two of several reports indicated that when a number of projects were reviewed it was found that Computer-Assisted Instruction (CAI) had been applied to reading, language arts and mathematics (Education Turnkey Systems, 1985; and Sarocho, 1981).

A number of reports referred to the existence of a growing gap between the rich and poor school districts in terms of access to such technology as CAI. It was also indicated that this gap was most apparent in school districts with large numbers of minority students (see especially, Education Turnkey Systems, 1985). This gap also exists between urban and rural districts with rural districts generally being poor in financial resources.

According to Cardenas (1983), there are three factors that will contribute to the increase of this gap: substituting technology education for educational equity as a national priority; the continuing disparity of school districts in their ability to acquire technology; and the continuing differences in personal levels of affluence plus students' ability to have technology at home.

The above points would seem to justify the continuation of projects at a "disadvantaged" school district such as San Elizario, in an attempt to decrease this gap.

As to the six components mentioned under "Evaluation of the Projects" (see Part I), the available documents confirm the importance of those items as measures in the evaluation of any such project.

I. Community/Parent involvement and support.

   A. Three reports (Rutherford & Almaguer 1981, and two by New York City Board of Education, Office of Educational Assessment, both 1986) indicate the essential need for parental support and understanding in any CAI program. All three reports focused on Hispanics—new arrivals or otherwise. It was urged that Parent Advisory Councils (PAC) be established to reinforce and convey the importance of the students' work at home in the CAI program.

B. & C. The districts' commitment to the project,and; teachers and staff attitudes toward the project. Three studies directly or indirectly address these two points. In summary and to no one's surprise, without strong commitment by the district personnel, administrators, teachers, and other staff, CAI will not succeed, nor would any other innovative project. In addition to general staff support, financial resources for material and specialized staff seem to be critically important (three reports by New York City Board of Education, Office of Educational Assessment, one 1985, two 1986). These reports indicate the need to train teachers through inservice workshops. The objective in all the projects reported was to improve skills in content areas and employment potential through CAI for all students enrolled in a project. These reports also urge the need for a fulltime director dedicated to the implementation of a CAI program. One other report (Education Turnkey Systems, 1985) strongly suggested that unless teachers' attitudes are positive toward CAI projects, students cannot be expected to be positive and their parents would reflect their children's attitudes. The report also suggests that such positive attitudes will influence the design and development of programs by the industry producing software products.

D. Extensive observation of classrooms and students involved in the project. Classroom observation of students involved in the project is suggested by Tikunoff (1985). This source offers a model of bilingual instructional features that the evaluation team used in their observation of the children in the project.

E. Other activities of the district such as training of staff involved in the project, dissemination of the project as a model through university/district collaboration and inventory of supplies related to the project, hardware and software. In several of the ERIC sources we reviewed there was brief reference to pre-service/in-service training of some kind, but little detail was offered. As for the other items in Point E, the evaluation team accepted and incorporated those suggestions (requirements) into the project (see Part III).

II. Quantitative

Student achievement in a quantitative sense was measured as outlined in this report. The GRM, as modified by the evaluation team, was recommended by Evaluation Assistance Center-West (EAC-West) operating under Title VII at the University of New Mexico. For a description of the quantitative results, see Part IV.

Part III

Descriptive or Qualitative Aspects of the Project Evaluation

Research and evaluation of students' standardized achievement test results by itself cannot provide sufficient information about whether or not a program is successful in achieving goals and objectives. An infinite number of variables impact on student learning: home and parent characteristics (family structure, parents' educational levels and socioeconomic status), student characteristics (age, length of time in the U.S., language proficiency in English and Spanish and academic aptitudes), school context (attendance area, enrollment, academic climate, language environment, teacher training and parental involvement) and elements of instructional services provided (subjects taught, amount of instruction in subjects, language of instruction, organization of classroom and instructional materials utilized and characteristics of the staff) (Young, et al., 1986). These are some of the variables to be investigated in order to achieve an understanding of a program's successes or failures.

The descriptive phase of the project evaluation was conducted to gain information about several major considerations including:

a. School district characteristics
b. Project characteristics
c. District/project comparisons
d. Parent Advisory Council characteristics
e. Project staff characteristics
f. Classroom characteristics
g. Project training activities

h. Demonstration and dissemination of project features

i. Additional project activities

j. Material resources

Each topic or area of interest to the project evaluation is addressed separately as follows:

A. Community Characteristics

Previous years' evaluations of the project have addressed a number of community variables that impact on student learning. During the tenure of this year's evaluation (1987-88) a team of researchers (medical and dental) from the University of Texas Health Science Center in San Antonio conducted a needs assessment study to determine whether or not a health clinic should be established in the San Elizario community.

The results of their study as cited in a news release is presented to provide information regarding community background.

The study was carried out in February 1988. A total of 427 residents of San Elizario participated in this study. Of that total, 188 were children, ages 4, 8, and 12. The remaining 239 were parents and siblings age 15-34. Medical, dental and demographic information was collected from the participants. The height and weight of all the people included in the survey were noted. Part of the results revealed that two-thirds of the individuals tested had been infected with Hepatitis A in the past. Participants who had been born in Mexico were more likely to have been infected. Even so, over 50% of U.S. born individuals also have had Hepatitis A in the past. Basic or urgent oral care was provided to 38 of the 188 children examined. The results of these health examinations appear to point to the probability that San Elizario's water supplied by shallow wells may not meet state standards for totally dissolved solids, nitrates and coliform bacteria. It was noted, though, that this unsafe water happens to be naturally fluoridated (0.7—1.2 ppm F). (Water and Waste Water Management Plan, El Paso County, 1987). The survey points to the conclusion that the health resources of San Elizario, like those of many border communities, are meager—one school nurse, a weekly visit by a pediatric medical resident, a county immunization program and intermittent visits by a dental van plus the community's own organizational resources. Therefore, it appears one can safely assume that the need for more health care is urgent in San Elizario.

B. School District Characteristics

Information regarding school district demographics and characteristics was collected via a self-administered questionnaire (Appendix A) completed by the district superintendent and the administrative staff.

The San Elizario School District has a total of 1,232 students ranging in age from 5-21 years, with 1,200 coming from low-income families. Spanish is the home language of 99% of the student population, and 741 of 1,232 students are classified as Limited-

English Proficient (LEP). Only two of the LEP students are not from low-income families.

Students attending San Elizario and born outside of the U.S. are predominantly of Mexican origin, and represent 45% of the student population. The three ethnic groups represented in San Elizario are Hispanics (1,217 students), Anglos (11 students), and Native Americans (4 students). The district also serves a small population of students from undocumented alien families (approximately 15% of total enrollment), and enrolled 118 new immigrant students this academic year (1987-88).

The district-wide average daily absentee rate is approximately five percent of the student body with the highest absenteeism taking place at kindergarten and 12th grade levels. Lowest daily absenteeism occurs in the 7th and 8th grades.

According to district-provided data, only 15 students dropped out of school during school year 1986-87, and only 12 have dropped out during the current school year (1987-88), with the highest drop-out rate occurring in the 9th grade for both years. This represents only an approximate one-percent drop-out rate, which is well below the range of normal expectations. In the past three years, 15% of district graduates have enrolled in post-secondary education institutions.

Last year, 62 students were not promoted to the next grade level, with the highest retention taking place in the 1st and 8th grades. As reported by the district, total enrollment in special education programs is 56 students (only 4.5% of the total student population), with LEP students making up 90% of the Special Education student population; 65 students participated in gifted/talented education programs with LEP students representing 30% of this enrollment.

The school district provides additional special services programs such as the Chapter I Migrant program serving 300 students, the Chapter I Regular program, serving 1,200 students, and an English-as-a-Second Language (ESL) program which serves 117 students.

The Language Assessment Scales (LAS) test, which provides a measure of students' oral language proficiency (see Appendix L) was last administered in September 1987 to district students in English and in Spanish. In English, 425 students are classified as "Non-Speakers," 175 as "Limited-Speakers," and 141 as "Academic" LEP students (Total 741). In Spanish, 280 students are classified as "Non-Speakers," 240 as "Limited Speakers," and 321 as borderline "Fluent Speakers" (total 841). As measured by the LAS, the average district-wide English oral proficiency is at level 3.4 or LEP category, with elementary students attaining lower proficiency levels (1.3 to 3.3/Non-Speaker or LEP) and junior high school/high school students attaining higher proficiency levels (4.2 to 4.7/near-fluent or fluent).

C. Project Characteristics

Data and information on the project under evaluation was gathered via a self-administered questionnaire (Appendix B) completed by project administrative staff.

The project provides instructional services to 119 students all of whom are Native-Spanish speakers. Of the 119 students, 116 come from low-income families, 85 are classified as LEP, 89 participate in the Chapter I Regular program, and 19 participate in the Chapter I Migrant program. Nine of the students participate in the gifted/talented education program and no project students are enrolled in the special education or ESL programs. No newly-arrived immigrant students are served by the project although eight students were added to the project enrollment during school year 1987-88.

The average daily absentee rate of project students (measured over a four-week period) is approximately four percent of the project student body, no project students have dropped out of school during school years 1986-87 and 1987-88, and no project students were retained at grade level last school year (1986-87). As estimated by project administrators, 20% of project students continue on to post-secondary educational institutions. The average English oral language proficiency level across the project is 4.1 (academic LEP), ranging from a Level 3 average (LEP) in early elementary to to Level 5 average (fluent) in 5th and 6th grades, and a Level 4 average (academic LEP) in high school.

D. District/Project Comparisons

Several items of interest arise when a comparison between district and project characteristics is conducted. Listed below are items that are considered of importance as evidence of a project's success:

1. Absentee rate--the project exhibits a lower daily student absentee rate than the district average at all grade levels.
2. Drop-out rate--while the district as a whole reports a very low drop-out rate, no students enrolled in the project have dropped out of school.
3. Grade-retention rates--no project students have been retained at grade level, while the district as a whole experiences student retentions at all grade levels.
4. Participation in special education programs--district enrollment of students in special education is 4.5% of the total student enrollment. However, no project students are enrolled in this program.
5. Participation in gifted programs--approximately five percent of the district student body is enrolled in gifted programs. Almost eight percent of project students participate in gifted programs.
6. English language proficiency levels--as measured by the Language Assessment Scales (LAS), project students exhibit

overall higher English language proficiency levels than do district-wide students.

7. Continuation to post-secondary education—a higher percentage (20% estimate) of project students continue on to post-secondary education as compared to district-wide students (15%).

E. Parent Advisory Council (PAC) Characteristics

Information regarding the role the PAC plays in schooling, its makeup, activities conducted, etc., was gathered by a self-administered questionnaire (Appendix C) completed by a senior PAC member.

There is a total of 34 PAC members in the San Elizario School District, of which the majority is females (27). Out of the total, seven speak Spanish only; ten, English only and 17 both languages; eleven of the members are employed by the school district, and seven of the members have children enrolled in the project. Meeting attendance averages 99.7% with meetings held twice yearly.

The main thrust of the PAC's activities are dedicated toward fund raising efforts and aiding the school district in educational administrative tasks involving the community. The PAC receives both oral and written reports from school administration/board officials, and communicates school information to the community via newsletters, posters, home visits, and word-of-mouth.

PAC members and parents have received much information concerning the project through special presentations and influence the educational process by talking to the superintendent and school board members.

F. Project Staff Characteristics

Information regarding the project's administrative and instructional staffs' backgrounds and qualifications was collected via a self-administered questionnaire (Appendix D). Results are presented according to project function filled by the staff members:

Project Director: The Project Director, a school district employee, holds a Doctorate in Education completed 1987-88 academic year, with state certifications/credentials in teaching, supervision and middle management, and is certified as a school district superintendent. Major and minor teaching areas include English, Spanish, drama and journalism with further emphasis in intercultural communications and language arts in the field of bilingual education. Completion of the Ed.D in academic year 1987-88 indicates a continuing professional effort. The Director is fully fluent in English and partially fluent in Spanish, and has instructed language-minority or LEP students for seven years. The Director does not provide direct instruction to project students on a regular basis, thus no further information regarding classroom activities was collected.

Project Coordinator: The Project Coordinator position is filled by a member of the University of Texas-El Paso (UTEP) staff under the cooperative model agreement. The Coordinator holds a Master of Arts degree in Education with state certifications/credentials in bilingual education and English-as-a-second language. Major and minor teaching areas include bilingual education and reading, with substantial additional emphasis in language arts, content areas, and ESL in the field of bilingual education. The most recent completion of college course-work occurred during the summer academic session, with current participation in academic course-work. The Coordinator has been instructing language-minority or LEP students at both the elementary and university levels for ten years, and is fully fluent in both English and Spanish. The Project Coordinator does not provide direct instruction to project students on a regular basis, thus information regarding classroom activities was not collected.

Project Instructional Staff (Elementary): Two project instructional positions at the elementary level are filled by UTEP undergraduates at the senior level or graduate students majoring in bilingual education. One of the instructors is currently a college senior majoring in bilingual elementary education with additional emphasis in Spanish language and bilingual education methodology, and has completed a wide array of workshops, seminars and courses in computer instruction. The instructor is fluent in both English and Spanish and has taught language-minority or LEP students for approximately six months. This instructor teaches an average of 35 students per day, all of whom are considered LEP, in grade levels

1-4. Instruction in writing, computer literacy, mathematics, and reading is provided in a computer laboratory utilizing a small group technique as opposed to teaching the entire class concurrently. All of the instructional materials utilized are in English, and instruction is delivered almost totally in English, 99% of the time, which is not purposely simplified for the students. The students are grouped by grade level with the great majority (30) having Spanish as their home language and the majority are reported by the teacher as being bilingual in speaking and comprehension but not in reading and writing of both languages. The other elementary school instructor holds a Bachelor of Arts degree in Education with major and minor teaching areas in English and bilingual education. This instructor holds state credentials in bilingual education, is currently taking university courses toward the completion of the Master of Arts degree, and has an additional emphasis in Language Arts within the field of bilingual education. This instructor also has a varied and in-depth background in computer instruction. The instructor is fully fluent in both English and Spanish, previously taught language-minority or LEP students for one year and is currently teaching an average of 20 5th and 6th grade students daily in a laboratory setting. Instruction is provided in the subject areas of language arts, science, mathematics and social science utilizing both small group and whole group lecture techniques. All of the instructional materials used are in English with instruction delivered almost completely in English 99% of the time. The students, all of which are categorized as LEP students, have Spanish as their home language and are considered by the instructor to be bilingual in all language aspects (speaking, reading, writing, comprehension).

Project Instructional Staff (High school): One high school level project instructional position is filled by a district teacher who holds a Bachelor of Arts degree in Education with major and minor teaching areas in computer technology and fine arts. The instructor holds state teaching certifications/credentials, completed additional college level courses during the summer of 1987, and has been instructing language-minority or LEP students for four years. The instructor is fully fluent in English and Spanish and instructs an average of 67 9th-12th grade students daily in a laboratory setting. Instruction is provided in mathematics, computer literacy, computer science and art using tutorial, small group and whole group techniques. Most of the instructional materials (90%) available to students are in English, and instruction is delivered almost wholly (90%) in English. Approximately 50% of the students are classified as LEP and are grouped in classes by language ability. Additionally, approximately 50% of the students have Spanish as their home language, and 50% of the students are considered by the teacher to be bilingual across all language aspects.

G. Classroom Characteristics

Evaluation of project classroom environments was guided by the model proposed in Tikunoff (1985) that delineates instructional features found to be significant for effective instruction of LEP students. Those instructional features, which should be present in successful programs, are excerpted below:

> It is important to note that, on the average, regardless of these variations in program focus, school district policies, philosophies of instruction for LEP students, differing ethnolinguistic groups, and curriculum and materials, the 58 teachers in the study exhibited all five significant bilingual instructional features frequently, consistently, and with high quality.
>
> The five instructional features found to be significant for the effective instruction of LEP students are:
>
> 1. Successful teachers of LEP students, like effective teachers, generally exhibit the 'active teaching' behaviors found to be related to increased student performance on tests of academic achievement in reading and mathematics. This is to say that--
>
>   Teachers communicate clearly when giving directions, accurately describing tasks and specifying how students will know when the tasks are completed correctly, and presenting new information by using appropriate strategies like explaining, outlining, and demonstrating;
>   They obtain and maintain students' engagement in instructional tasks by maintaining task focus, by pacing instruction appropriately, by promoting student involvement, and by communicating their expectation for students' success in completing instructional tasks;

> They monitor students' progress and provide immediate feedback whenever required with respect to whether students are achieving success in tasks or, if not, how they can achieve success.
>
> 2. Successful teachers of LEP students mediate effective instruction for LEP students by using both L_1 (native language) and L_2 (second language, in this instance, English) effectively for instruction, alternating between the two languages whenever necessary to ensure clarity of instruction for LEP students.
> 3. Successful teachers of LEP students mediate effective instruction for LEP students by integrating English language development with academic skills development, thus enabling LEP students to acquire English terms for concepts and lesson content even when L_1 is used for a portion of the instruction.
> 4. Successful teachers of LEP students mediate active teaching by responding to and using information from the LEP students' home culture(s). They (a) use cultural referents during instruction, (b) organize instruction to build upon participant structures from the LEP students' home culture(s), and (c) observe the values and norms of the LEP student's home culture(s) even as the norms of the majority culture are being taught.
> 5. The instructional intent of successful teachers of LEP students is congruent with how they organize and deliver instruction, and with the resultant consequences for students. In addition, they communicate (a) high expectations for LEP students in terms of learning and (b) a sense of efficacy in terms of their own ability to teach all students. (Tikunoff, 1985, p.3).

Information regarding project classroom environments was gathered via direct observation utilizing an observational survey

(Appendix E). The evaluation team conducted several observations in each classroom to ensure the applicability of the survey form, and to maintain cross-validity of findings. At least two evaluators observed the same classroom concurrently. Grades 1-6 and 9-12 were observed several times with junior high school levels observed once. Junior high grades, 7/8, are not a part of the project.

Classroom environments are addressed by elementary, high school and junior high school levels:

Elementary:

1. All instruction is conducted in a lab setting; grades 1-4 have been relocated from a noisy, hot and dusty area to a self-contained, clean, well-lit, quiet lab capable of seating 10-12 students. Grades 5 and 6 were temporarily housed in a standard-size classroom in the junior high school until construction was completed on a new elementary wing which will provide a large computer lab for these grade levels.
2. Subjects typically taught include the "basics": reading, mathematics, writing, language arts, spelling, grammar and composition [illegible]th coordination of lessons taking place on a regular basis between project teachers and regular classroom teachers. The majority of the delivery of subject matter is instructional in nature, with some tutoring and testing taking place. Computer games are incorporated into the curriculum

not only as a learning vehicle, but also as a source of reward. Few textbooks, other than reference books (in English) are used. The teachers construct most of their lessons using dittos.

3. Class size ranges from 5-8 students per class approximately equally distributed between male and female students. No aide or team teacher is available and typically the small group or individualized student instruction is used rather than a large group approach or lecture. All computer programs/software utilized are commercially prepared and in English only. While the majority of programs are instructional in content, some tutorials, word processing and game programs are used. Students spend 75-90% of instructional time specifically using personal computers with the remaining class time spent on other learning tasks (writing, completing ditto's, etc.) or peer-tutoring. The instructors' teaching methodology emphasizes tutoring individual students, some directing of small groups, with a small amount of peer-tutoring occurring at these levels.

4. English is emphasized as the predominant language for utilization in all school aspects. Instructors use English 90-100% of the time when teaching or addressing students with very little code-switching or language mixing occurring. When instructors do use Spanish, it is alternated with English

rather than a direct translation or concurrent code-switching. While students address the teacher or ask questions in Spanish much of the time, responses are usually provided in English. Among themselves, students tend to use English more than Spanish during class time (approximately 75%). At these levels English is generally used more in other than instructional areas by all school personnel and students. Finally, home culture/native language cultural materials are seldom or never used during instruction of students although evidence of such materials is noted on bulletin boards, posted in hallways, and in some students' writings.

5. Few problems were noted during observations. A few problems with software (e.g., damaged disks) and hardware (e.g., jammed printer) were observed, but their nature was not serious enough to substantially disrupt instruction. Students had no great difficulty working on/with personal computers, although some difficulty with new academic concepts (e.g., multiplication) was noted. Some discipline problems arose when the class size became too large (more than 8 students) at the lower elementary levels.

High School:

1. All instruction is conducted in a lab setting with project students recently housed in a new, large, well-lit, noise-free lab. Class size ranges from 14-19 students per session with

an almost equal distribution of male and female students from grades 9-12 intermixed during the session.

2. Subjects of instruction include math, science, computer literacy, language arts, English composition, art, graphic arts, printing, and computer programming with a study period included once per week (see Lesson Plan example in Appendix F). Although an aide is not available, an advanced student provides peer-tutor assistance to students needing aid. Instruction is delivered in a highly individualized fashion, with very little whole group or small group instruction provided. Instruction is typically instructional explanatory or introductory (new information) in nature with some tutorials or testing used. Computer games are frequently utilized as reward.
3. Few textbooks specific to computer use are utilized, with students' textbooks from other academic subjects used for study. Programs are commercially-prepared and are in English only. These consist of introductory, instructional, tutorial, graphics, games, etc. Students spend 75-90% of class time actually using the personal computers with the remaining time spent on other instructional tasks and in peer-tutoring.
4. As at the elementary levels, English is predominant in instruction with the instructor using English 90-100% of the time including responding in English to student questions.

Both an alternative (explanations provided in both languages) and a translation (exact and complete translation stated in Spanish) models are used by the instructor during the rare time Spanish is used. Students, however, use more Spanish than English among themselves, both in and out of classrooms, in contrast to elementary school levels. Again, English is typically used among school staff and between staff and students. While home culture materials are used more often at this level both in class by the instructor and more in evidence throughout the school than at the elementary level, these materials are not an emphasis in overall instruction, and their inclusion in the classroom is rarely noted.

5. Very few problems were observed, with only minor hardware and software difficulties (as in elementary classes) noted. No discipline problems are evident, stronger academic students help weaker students. The only problem, as reported by the instructor, seems to be a lack of adequate expendable supplies, such as print paper, etc.

Junior High School: A computer literacy program exists at the 7th and 8th grade levels. However, the program is provided as part of the district curriculum and not as part of the project under evaluation. The program was observed because it provides a "bridge" between elementary and high school components of the project.

1. This program has a higher concentration of LEP students with a class size of approximately 10-14 students. A lab setting is utilized and computer literacy is a required subject by state of Texas mandate. The instructor utilizes a variety of methods (introductory, instructional, etc.) to provide students the necessary instruction and is aided by a peer-tutor from the high school level project.
2. At this level, a greater degree of Spanish is used between the teacher and students, and between students. Some software programs are available in Spanish, but the majority are commercially-prepared English-only programs. Students spend the majority of class time working with the personal computer, with the instructor tutoring or directing individual students the majority of the time. A greater use of home culture materials and concepts are used at this level, and native language use is more evident, although the instructor is increasing his demand for use of English.
3. The lab setting is large, clean, well-lit, quiet and well-equipped. Many visuals (art, history, science, literacy, and printing) are in evidence throughout the lab, and a general orderliness is present. Students are well-behaved and utilize their time constructively and productively, and enjoy a good rapport with their instructor.

4. No problems were evident during observation.

5. Much of the success of the junior high school program can be attributed to the instructor. This instructor has an in-depth background in computer science and computer literacy, was a member of the original project staff, and has achieved considerable experience in CAI during the four-year project.

H. Project Training Activities: Numerous training opportunities were provided to district personnel in various functions through project-funded in-service programs. The programs served to aid new faculty, administrative staff, instructional staff, paraprofessionals and support staff in becoming aware of methods and techniques for improving instruction of bilingual and LEP students.

Historical records provided by project staff indicate the training activities:

Date	Topic/Title of In-service	Attendees
7/31/87	"Bilingual Teachers' Role in Title VII"	Bilingual teachers
8/11-12/87	"Bilingual Immersion Program"	New Bilingual Teachers
8/17/87	"School Effectiveness Literature: Improving Instruction and Student Test-Taking Skills in Bilingual Students"	All Teachers
8/18/87	"Bilingual Immersion Program-The Second Year"	Returning Bilingual Teachers
8/19/87	"The Writing Process"	All teachers
8/20/87	"Reading and Writing for the ESL Student"	All teachers
8/25/87	"Effective Schools"	Administrators
10/8/87	"Developing the Self-Concept in the Bilingual Student"	Support staff
11/20/87	"Modification of the Essential Elements for Special Needs Students"	All teachers
12/5/87	"Teaching Higher-level Thinking Skills in the Bilingual Child"	All teachers
12/8-9/87	"Introduction to the Apple and Title VII Computer Program"	All teachers and paraprofessionals
1/9/88	"Cooperative Learning" by the MR Center of Southwest Educational Development Laboratory.	All teachers
1/15/88	"Workshop on Journal Writing" by Region XIX Service Center	K-3 Bilingual teacher

I. Demonstration and Dissemination of Project Features

As in the past, university, school district and project personnel continued intensive efforts, both formal and informal, to demonstrate the project to interested parties. Historical records provided information of demonstration and dissemination activities conducted during 1987-88 which include:

1. Presentation of report "TEA (Texas Education Agency) Bilingual Requirements" to all bilingual teachers grades K-6; August 31, 1987.
2. Presentation of report "Consideration of Title VII Evaluators" to school board members; October 2, 1987.
3. Presentation of report "Title VII Evaluations-5th Year Renewal 1987-88" to school board members; October 12, 1987.
4. Presentation of project features at a parenting workshop to community members; October 27, 1987.
5. Presentation of project features at the "TEXTESOL" Mini-conference; November 14, 1987.
6. Presentation of project features to the Rio Grande Council of Governments Board of Directors resulting in a vote of support; November 20, 1987.
7. Presentation of report "Title VII Report" to school board members; December 7, 1987.
8. Presentation of project features to 29 Texas Title VII directors at a Title VII meeting, Austin, TX Multiple Resources Center.

9. Publication of the project description in the UTEP faculty and staff newsletter "Compass"; October, 1987.
10. Publication of project features and impact on student learning in "La Luz", the school district's parents' newsletter.
11. Project tours and discussion of project features to/with UTEP education professors representing a variety of educational backgrounds including bilingual education, social science, early childhood and reading.
12. Inclusion of project descriptions in bilingual education courses provided by UTEP.
13. Discussion of the project and sharing of instructional materials and software with the Gadsden, NM ISD.
14. Dissemination of project features with local districts to include Canutillo, TX, ISD and Fabens, TX ISD.
15. Presentation of project features to undergraduate and graduate level students at New Mexico State University.
16. Discussion of project goals and objectives with state and national researchers conducting additional research (medical/dental/historical/geological) in the district and community.
17. Publication of 1986-87 project evaluation reports in the Educational Resources Information Center (ERIC) archives (submitted and accepted-to be released).
18. Projected publication of 1987-88 evaluation report in a Joint Border Research Institute technical paper.

J. Additional Project Activities

In addition to demonstration and dissemination activities, training programs and instructional activities, other activities have been undertaken by project personnel to improve the project, enhance instruction for students, and increase awareness of the project. The following information was obtained through review of historical records provided by project staff.

Activities include:

1. New Project instructors were provided in-service training by exiting instructors (1987-88) ensuring continuity with the result that computer laboratory instruction commenced within a week following the start of the new school year.
2. Project instructors attended all in-service training programs provided to school personnel, enhancing their own educational background and helping to break down any barriers to communications between project staff and school staffs.
3. Project instructors produce a project newsletter once per month that highlights student activities and student accomplishments and it is distributed to all teachers and project students.
4. Journal and research articles on bilingual education, ESL and computer literacy topics are routinely distributed to district teaching staff by project staff.

5. Science Research Associates (SRA) Basic Skills software copyrights were purchased and instructional software distributed to district teaching staffs.
6. The computer labs have been made available to district teaching staffs for their own use when project students are not using them. Additionally, a "roving" computer can be checked out by elementary teachers for use in their own classrooms.
7. A peer-tutor program has been established with advanced project students providing tutoring to other students as needed.
8. Project and Title VII materials have been placed in the school library and catalogued for check-out by district teaching staffs.
9. Project instructors interact directly with school principals to provide aid in the production of school newsletters, banners, certificates, etc.
10. Project instructors collaborate with classroom teachers in order to dovetail project instruction with classroom instruction. Also, a special education computer lab cooperative program was established to provide instruction to special education students.
11. Substitute teachers were hired in order that classroom teachers could attend in-service training programs during duty hours resulting in an increase in attendance.

12. Project instructors sent formal invitations to project parents to visit computer labs during instructional periods resulting in an excellent parent turnout.
13. Software inventories were greatly increased through the purchase of public domain software available at substantially reduced prices.
14. Project personnel attended computer maintenance workshops provided by the Region XIX Service Center resulting in a decrease in computer down-time and breakdowns.
15. Project instructors were awarded UTEP Title VII scholarships for UTEP science courses for developing science experiments with this training disseminated to other district teachers.
16. The elementary school computer lab was moved from a semi-open, hot, noisy and dusty area to a resource room that provided a clean, well-lit, noise-free environment. Also, the high school lab has been moved to a larger, better equipped lab in a new wing of the high school. Finally, a new lab for 5th-6th grade levels was established in a new elementary school wing.
17. Cooperative/collaborative projects have been established with Region XIX Service Center, Canutillo, TX ISD, Socorro, TX ISD, and Harlandale, TX ISD for provision of training and sharing of instructional materials.

K. Material Resources

Inventories of software, hardware and supplies provided by project staff (Appendix G & H) indicate a well-equipped program.

However, it must be realized that the "high-tech" world of computer science is a rapidly-changing environment requiring a continual upgrading of equipment inventories. New and better software comes on the market daily and must be purchased on a continual basis in order to remain current. Supplies, such as print paper, are expended rapidly.

Part IV

Quantitative Aspects of the Project Evaluation

Project students' progress or lack of progress in academic subjects and language proficiency was evaluated through analysis of standardized test score results. Standardized tests used for this purpose include the Science Research Associates (SRA) Survey of Basis Skills (SBS) (SRA, Inc., 1985) and the Language Assessment Scales (LAS) (Duncan & DeAvila, 1981). Analysis and results of project students' achievement is presented below by test type utilized:

A. SRA-SBS

The SRA-SBS was utilized to evaluate student achievement in the academic subjects of reading, language arts and mathematics. Composite or overall achievement across academic subjects was also evaluated. Students' test scores presented as growth scale values were reduced to means or averages by grade level and academic subject using a pretest date of 10/1987 and a posttest date of 4/1988. Utilizing only matched pre- and posttest scores, they were compared to national norms or standards in order to provide a comparison of the project students' achievement in relation to students across the United States.

A Gap-Reduction Model (Appendix I) which provides evidence of whether or not lower achieving students are closing the gap between themselves and similar national groups was proposed for use by the Title VII Evaluation Assistance Center-West, University of New

Mexico. However, difficulties arose with the use of this model; the small numbers of student test scores appeared to contribute to final computations that appeared incongruent with realistic gains/losses in achievement. Therefore, an evaluator-developed modified Gap-Reduction Model (GRM-modified) (Appendix J) was utilized to provide a comparison of project students' achievement growth in relation to national groups.

An overview or summary of students' achievement across the subjects analyzed is presented in Table 1. In-depth analyses, charts and results are presented in Appendix K.

TABLE 1

SRA SURVEY OF BASIC SKILLS TEST

SUMMARY RESULTS

Column 1 = pretest gap
Column 2 = posttest gap
Column 3 = gap increase/decrease
Column 4 = % gap increase/decrease
* = no national norms available

	Composite				Reading				Language Arts				Math			
Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	*	*	--	--	+78	-24	-102	-133	*	*	--	--	*	+ 8	--	--
2	*	-33	--	--	-62	-53	+ 9	+ 14	*	-39	--	--	-24	- 9	+15	+63
3	-46	-46	0	0	-57	-46	+ 11	+ 20	-45	-52	- 7	-15	-20	-13	+ 7	+35
4	-48	-41	+ 7	-15	-40	-28	+ 12	+ 30	-35	-36	- 1	- 3	-31	-20	+11	+35
5	-78	-93	-15	-20	-63	-76	- 13	- 21	-72	-79	- 7	-10	-35	-47	-12	-35
6	-56	-48	+ 8	+14	-44	-45	- 1	- 2	-49	-44	+ 5	+10	-16	- 3	+13	+81
9	-48	-48	0	0	-27	-25	+ 2	+ 7	-32	-30	+ 2	+ 6	-42	-41	+ 1	+ 2
10	-52	-48	+ 4	+ 8	-42	-34	+ 8	+ 19	-22	-17	+ 5	+22	-40	-46	- 6	-15
11	-31	-22	+ 9	+29	-29	-15	+ 14	+ 48	- 4	- 3	+ 1	+25	-32	-31	+ 1	+ 3
12	-70	-53	+17	+24	-46	-33	+ 13	+ 29	-48	-46	+ 2	+ 4	-58	-41	+17	+29

Analysis and Results: Table 1 presents a summary of projects students' standings in relation to national comparison groups in the areas tested by the SRA-SBS (Reading, Language Arts, Math). Composite score comparisons are also provided. Comparisons are presented as "gaps" between project students' and national groups' test results for both pre- and posttest, and whether project students reduced or increased the gap between themselves and national groups.

Results by grade level follow:

Grade 1

a. Composite--project students increased their mean score from 139 to 151, but no national norms were available to determine comparisons.

b. Reading--in the pretest, project students' mean score was 78 points over national norms; however, their posttest mean score was 24 points below the national norm for a loss of 102 points or a gap increase of approximately 133% between themselves and national groups.

c. Language Arts--project students increased their mean score from 119 to 150, but no national norms were available to determine comparisons.

d. Math--no pretest national norms were available, however, project students raised their mean score from 139 to 167 scoring 8 points higher than the national average (159) on the posttest. Gap-reduction/increase cannot be determined.

Grade 2

a. Composite--no pretest national norms were available. Although project students increased their mean score from 113 to 183, they scored 33 points lower than the national average (216) on the posttest. A gap-reduction/increase cannot be determined.

b. Reading--project students' mean pretest score was 62 points below the national average; their mean posttest score was 53 points, below the national average for a 9-point increase, or a gap-reduction of approximately 14% between themselves and national groups.

c. Language Arts--no pretest national norms were available. Although project students increased their mean score from 116 to 180, they scored 39 points below the national average (219) on the posttest. A gap-reduction/increase cannot be determined.

d. Math--project students' mean pretest score was 24 points below the national average; their mean posttest score was 9 points below the national average for a 15-point increase, or a gap-reduction of approximately 63% between themselves and national groups.

Grade 3

a. Composite--project students' mean pretest score was 46 points below the national average; their mean posttest score was also 46 points below the national average indicating no gap-reduction or increase occurred.

b. Reading--project students' mean pretest score was 57 points below the national average; their mean posttest score was 46 points below the national average for an 11-point increase, or a gap-reduction of approximately 20% between themselves and national groups.

c. Language Arts--project students' mean pretest score was 45 points below the national average; their mean posttest score was 52 points below the national average for a loss of 7 points, or a gap-increase of approximately 15% between themselves and national groups.

d. Math--project students' mean pretest score was 20 points below the national average; their mean posttest score was 13 points below the national average for a 7-point increase, or a gap-reduction of approximately 35% between themselves and national groups.

Grade 4

a. Composite--project students' mean pretest score was 48 points below the national average; their mean posttest score was 41 points below the national average for a 7-

point increase, or a gap-reduction of approximately 15% between themselves and national groups.

b. Reading--project students' mean pretest score was 40 points below the national average; their mean posttest score was 28 points below the national average for a 12-point increase, or a gap-reduction of approximately 30% between themselves and national groups.

c. Language Arts--project students' mean pretest score was 35 points below the national average; their mean posttest score was 36 points below the national average for a loss of 1 point or a gap-increase of approximately 3% between themselves and national groups.

d. Math--project students' mean pretest score was 31 points below the national average; their mean posttest score was 20 points below the national average for an 11-point increase, or a gap-reduction of approximately 35% between themselves and national groups.

Grade 5

a. Composite--project students' mean pretest score was 78 points below the national average; their mean posttest score was 93 points below the national average for a 15-point decrease, or a gap-increase of approximately 20% between themselves and national groups.

b. Reading--project students mean pretest score was 63 points below the national average; their mean posttest score was 76 points below the national average for a 13-point decrease, or a gap-increase of approximately 21% between themselves and national groups.

c. Language Arts--project students' mean pretest score was 72 points below the national average; their mean posttest score was 79 points below the national average for a 7-point decrease, or a gap-increase of approximately 10% between themselves and national groups.

d. Math--project students' mean pretest score was 35 points below the national average; their mean posttest score was 47 points below the national average for a 12-point decrease, or a gap-increase of approximately 35% between themselves and national groups.

Grade 6

a. Composite--Project students' mean pretest score was 56 points below the national average; their mean posttest score was 48 points below the national average for an 8-point increase, or a gap-reduction of approximately 14% between themselves and national groups.

b. Reading--project students' mean pretest score was 44 points below the national average; their mean posttest score was 45 points below the national average for a 1

-point decrease or a gap-increase of approximately 2% between themselves and national groups.

c. Language Arts--project students mean pretest score was 49 points below the national average; their mean posttest score was 44 points below the national average for a 5-point increase, or a gap-reduction of approximately 10% between themselves and national groups.

d. Math--project students' mean pretest score was 16 points below the national average; their mean posttest score was 3 points below the national average for a 13-point increase, or a gap-reduction of approximately 81% between themselves and national groups.

Grade 9

a. Composite--project students' mean pretest score was 48 points below the national average; their mean posttest score was also 48 points below the national average indicating that no gap increase or reduction occurred.

b. Reading--project students' mean pretest score was 27 points below the national average; their mean posttest score was 25 points below the national average for a 2-point increase, or a gap-reduction of approximately 7% between themselves and national groups.

c. Language Arts--project students' mean pretest score was 32 points below the national average; their mean posttest score was 30 point below the national average for a 2-

point increase, or a gap-reduction of approximately 6% between themselves and national groups.

d. Math--project students' mean pretest score was 42 points below the national average; their mean posttest score was 41 points below the national average for a 1-point increase, or a gap-reduction of approximately 2% between themselves and national groups.

Grade 10

a. Composite--project students' mean pretest score was 52 points below the national average; their mean posttest score was 48 points below the national average for a 4-point increase, or a gap-reduction of approximately 8% between themselves and national groups.

b. Reading--project students' mean pretest score was 42 points below the national average; their mean posttest score was 34 points below the national average for an 8-point increase, or gap-reduction of approximately 19% between themselves and national groups.

c. Language Arts--project students' mean pretest score was 22 points below the national average; their mean posttest score was 17 points below the national average for a 5-point increase, or a gap-reduction of approximately 22% between themselves and national groups.

d. Math--project students' mean pretest score was 40 points below the national average; their mean posttest score was 46 points below the national average for a 6-point decrease, or a gap-increase of approximately 15% between themselves and national groups.

Grade 11

a. Composite--project students' mean pretest was 31 points below the national average; their mean posttest score was 22 points below the national average for a 9-point increase, or a gap-reduction of approximately 29% between themselves and national groups

b. Reading--project students' mean pretest score was 29 points below the national average; their mean posttest score was 15 points below the national average for a 14-point increase, or a gap-reduction of approximately 48% between themselves and national groups.

c. Language Arts--project students' mean pretest score was 4 points below the national average; their mean posttest score was 3 points below the national average for a 1-point increase, or a gap-reduction of approximately 25% between themselves and national groups.

d. Math--project students' man pretest score was 32 points below the national average; their mean posttest score was 31 points below the national average for a 1-point increase, or a gap-reduction of approximately 3% between themselves and national groups.

Grade 12

a. Composite--project students' mean pretest score was 70 points below the national average; their mean posttest score was 53 points below the national average for a 17-point increase, or a gap-reduction of approximately 24% between themselves and national groups.

b. Reading--project students' mean pretest score was 46 points below the national average; their mean posttest score was 33 points below the national average for a 13-point increase, or a gap-reduction of approximately 29% between themselves and national groups.

c. Language Arts--project students' mean pretest score was 48 points below the national average; their mean posttest score was 46 points below the national average for a 2-point increase, or a gap-reduction of approximately 4% between themselves and national groups.

d. Math--project students' mean pretest score was 58 point below the national average; their mean posttest score was 41 points below the national average for a 17-point increase, or a gap-reduction of approximately 29% between themselves and national groups.

Overview

a. Composite--gap-reductions between project students and national groups occurred at all grade levels except grades 5 (20% increase) and 9 (no reduction/increase); the greatest reduction occurred at grade 11 (29%).

b. Reading--gap-reductions between project students and national groups occurred at all grade levels except grades 1 (133% increase), 5 (21% increase), and 6 (2% increase); the greatest reduction occurred at grade 11 (48%).

c. Language Arts--gap-reductions between project students and national groups occurred at all grade levels except grades 3 (15% increase), 4 (3% increase) and 5 (10% increase); the greatest reduction occurred at grade 11 (25%).

d. Math--gap-reductions between projection students and national groups occurred at all grade levels except grades 5 (35% increase) and 10 (15% increase); the greatest reduction occurred at grade 6 (81%).

B. LAS

The LAS test results were analyzed to determine project students' gains or losses in both English and Spanish proficiency. LAS scores are typically reported as oral Proficiency levels ranging from Level 1 (non-speaker) to Level 5 (fluent speaker) (See Appendix L). However, level scores provide only a gross estimate of student achievement, and student gain/loss should be determined through analysis of raw scores when available. A pretest/posttest analysis model was used to determine gain/loss in proficiency; a pretest date of Spring, 1986 and a posttest date of Spring, 1987 was established for analysis of scores, and test score results analyzed by grade level and language utilizing only matched pre-and posttest scores. Table 2 presents project students' achievement by grade level and language:

TABLE 2

LAS ENGLISH/SPANISH TEST SUMMARY RESULTS

(Pretest = Spring, 1986) (Posttest = Spring, 1987)

Grade	English Pretest Mean	English Posttest Mean	Gain/Loss Mean	Spanish Pretest Mean	Spanish Posttest Mean	Gain/Loss Mean
1	1.6	2.6	+1.0	--	--	--
2	3.0	4.0	+1.0	--	--	--
3	3.0	4.2	+1.2	3.0	5.0	+2.0
4	4.0	4.0	-0-	3.0	5.0	+2.0
5	4.0	4.3	+ .33	--	--	--
6	3.7	4.8	+1.1	--	--	--
9	3.9	4.1	+ .27	--	--	--
10	3.8	4.1	+ .33	--	--	--
11	3.6	4.1	+ .50	--	--	--
12	3.0	3.0	-0-	--	--	--

Analysis and Results

Table 2 presents a summary of LAS English and Spanish matched pre- and posttest scores across 1-6 and 9-12 for project students. Means for each grade level were derived from project students' individual test scores. Appendix M provides individual grade score results and means for both English and Spanish tests by "level" scores and raw scores where available.

Insufficient raw scores were available. Thus, means of "level" scores are provided in Table 2 for each grade level. LAS Spanish test scores were not available for grades 9-12.

As evidenced by the summary scores in Table 2, gains in English oral language proficiency occurred at all grade levels except grades 4 and 12, where no gain or loss is noted, with the greatest gains in English noted at grade levels 3 and 6. Gains in Spanish and language proficiency occurred at grades 3 and 4. However, insufficient matched scores were available to determine achievement in Spanish at other grade levels.

Part V

Summary and recommendations

The evidence in Part III where descriptive and qualitative aspects of the project evaluation were compiled through the information gathered from several San Elizario sources shows that the district/project has been successful in a variety of ways that cannot be measured purely by examination of academic test scores. The variables discussed in Part III, indicate project students' willingness to attend school, stay in school and continue their education; project students advance through grade levels at higher rates, acquire English proficiency more rapidly by participating in the project, are in need of less specialized services such as special education, and are motivated to participate in advanced instruction. Project students tend to fare better because of the project and are thus more successful in the educational context than their counterparts.

The information regarding the role the Parent Advisory Council (PAC) plays in the San Elizario school district indicates that PAC has little real influence in the educational process. Only approximately three percent of the parent population is represented in the PAC, with approximately one-third of the PAC employed by the district. The PAC meets only two times per year and its activities are more social than official in nature. Little participation by parents on a regular basis in the educational process is the case. It is recommended that greater efforts be made by school district staff to include PAC and parents in specific educational activities.

A review of the project staff characteristics reveals a high degree of preparedness for ensuring project students' success across a variety of content areas. Additionally, instructional environments (class size, teaching methodologies and techniques, classroom settings, and materials) further contribute to increased student learning. The project staffs provide an exemplary model of bilingual education combined with delivery of high-technology instruction to a student population that can most benefit from such instruction. It is recognized that an unwritten policy of language use exists that emphasizes a greater utilization of English in instructional settings. It is recommended that an effort be made to increase the use of Spanish in a natural manner within these settings (see Tikunoff, 1985, p. 3).

Information gathered regarding classroom characteristics shows that, in general, classroom instruction and environments at the elementary level range from very good to excellent. Instructors are capable and competent providing up-to-date instruction and appropriate environments; good rapport exists between project staff and other school staff, and students seem eager to learn and are well-behaved and orderly. Nevertheless, of the five instructional features found to be significant for effective instruction of LEP students (Tikunoff, 1985, p. 3), the project exhibits weaknesses in both the use of native language and home culture materials during instruction. While an overt policy against the use of Spanish in school is not present, one would expect a higher degree of Spanish usage for instructional purposes in a district that is 99% Hispanic or Spanish-speaking. It is recommended that class size be at low numbers to minimize discipline and management problems. Locally prepared programs should be utilized to a greater extent. Commercially prepared programs do not provide information about local and regional issues. Further, there should be an increased use of native language and cultural materials, concepts and referents during instruction.

The high school level has a good program in place with the instructor providing quality instruction in a great variety of academic subjects in addition to computer literacy and computer science. An excellent rapport exists between teacher and students as well as with other staff personnel. Much "real-world" orientation occurs, increasing levels of difficulty are presented and specialized subtopics are available to challenge students. Students maintain task focus, complete work readily, are polite and well-behaved and appear to enjoy the classroom environment. As with the elementary program, a weakness is noted in the use of native language and home culture materials, concepts and protocols. It is recommended that this program be an increase in the use of native language and home culture materials.

The junior high school program appears to provide a vehicle for carrying forward the goals and objectives of the project. With this program in place, students can now receive a full 12-year computer education. It is recommended that this program be continued if local funds permit. Since the instructor at this level has been providing computer education the longest time in the district, he should be utilized more toward preparing both elementary and high school instructors in delivery of computer instruction.

In the area of project training activities, the project appears to be providing an excellent model of training in bilingual education not only to project staff but to all other school personnel. This aspect of the project is highly successful.

The demonstration and dissemination of project information is evident among the project personnel who have done much to insure that project features are disseminated to a variety of interested recipients at both local and national levels. It is recommended that project personnel should continue their efforts to disseminate the project to a larger audience. Project information and impact on student learning should be presented at national conferences not restricted to Title VII or computer literacy topics but other research areas as well. Efforts to publish in a variety of journals should be continued.

Additional project activities show that project personnel have far exceeded expectation in their efforts to enhance instruction for students, provide training opportunities for district personnel and establish a network of working relationships with other educational institutions. The creativity and dedication of project staff goes far toward the successful accomplishment of the project's goals and objectives.

Finally, in material resources, while the project makes a great effort to maintain appropriate levels of a variety of supplies and equipment, the project at times experiences shortages in various items. It is recommended that funding be increased for learning materials and resources so as to relieve the problem of shortages and ensure up-to-date materials.

Part IV, Quantitative Aspects of the Project Evaluation, includes the results of the SRA Survey of Basic Skills Test. As reflected in those results. Limited-English-Proficient (LEP) students tend to score lower than the national average on standardized tests for a variety of reasons including difficulty and cultural inappropriateness inherent in standardized testing instruments. At issue is not whether LEP students score lower than national groups on pre- and/or post-tests, but whether they are falling behind, keeping up or catching up with national groups. The gap-reduction evaluation provides the means for determining LEP students' standings in relation to national groups and measuring their progress in comparison to those groups. With a few exceptions, project students are narrowing the gap, that is, catching up with their national peers across the content areas of reading, language arts and math, and overall composite areas. Although project students scored lower than national groups in both pre and posttests, their growth in learning in these particular areas is progressing at a faster pace than national groups. Of major concern are the losses and gap-increases exhibited by 5th grade project students, which occurred across all tested areas. It is recommended that district administrators investigate this phenomenom and attempt to determine causes leading to these losses in learning.

The other results included in Part IV are those for the Language Assessment Scales English/Spanish Test. As measured by the LAS, project students exhibit strengths in Spanish oral language proficiency and are moving toward full oral language proficiency in English. One should note, however, that measures of oral language proficiency do not provide sufficient information about how students will perform on academic achievement tests nor how well they will perform classroom instructional tasks, which are better indicators of a student's functional proficiency in the language (Tikunoff, 1985, p. 5). Observation of project students at work during lab sessions, and analysis of academic achievement test scores reinforce results of the Language Assessment Scales. Project students are achieving full functional proficiency across the various components of the English language.

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Note: The ERIC search was conducted December, 1987 under the descriptor terms: Computer Literacy, Computer Assisted Instruction, Bilingual, English as a Second Language. There were an additional thirteen entries not cited in this report.

APPENDIX A

APPENDIX A

A STUDY
OF
THE SAN ELIZARIO BILINGUAL LEARNING COMMUNITY:
AN APPLICATION OF TECHNOLOGY TO READING/WRITING/MATHEMATICS/COMPUTER LITERACY

DISTRICT CHARACTERISTICS QUESTIONNAIRE

This questionnaire is part of a study conducted by an independent evaluation team to evaluate the effectiveness of the above-named Title VII federally-funded project. All responses will be kept confidential and will appear in final evaluation reports only as sum totals of reduced data or information, and no staff member, community member, or student will be identified by name in these reports. Your cooperation in completing this questionnaire is vitally necessary to make the results of this study comprehensive and accurate.

THE SAN ELIZARIO BILINGUAL LEARNING COMMUNITY:

AN APPLICATION OF TECHNOLOGY TO READING/WRITING/MATHEMATICS/COMPUTER LITERACY

District Characteristics Questionnaire

Instructions: This questionnaire is to be completed by members of the school district central office administrative staff. If exact numbers/figures are not available, provide an estimate and indicate that the number provided is an estimate. Unless otherwise specified, provide data for the school year 1987-88.

---

1. What is the total number of enrolled students in the district?

2. What is the total number of enrolled students from low-income families?

3. What is the total number of enrolled students categorized as Limited-English-Proficient (LEP)?

4. Total number of both low-income and LEP?

5. What is the total number of enrolled students whose native language/home language is:

   Spanish _________ English _________ Other _________ ?

6. As of the last administered language proficiency examination (IAS) (Specify testing dates: English__________ - Spanish___________)

   What is the total number of students in each fluency category by language?

English	Spanish
IAS - 1 _________	IAS - 1 _________
IAS - 2 _________	IAS - 2 _________
IAS - 3 _________	IAS - 3 _________
IAS - 4 _________	IAS - 4 _________

7. What is total number of enrolled students born outside of the United States?

8. Which foreign country is most representative of the student group born outside of the United States?

9. What is the total number of enrolled students in each ethnic group below?

Hispanic __________
Asian __________
Black __________
Anglo __________
Native American __________
Other __________

10. What is the total number of new immigrants from foreign countries enrolling in the district this past year (1987)? __________

How many LEP? __________
How many Low-Income? __________

11. What is the average age of enrolled students in the district? __________

12. What is the youngest age? __________ Oldest? __________

13. Give the total number of enrolled students in each age group listed below?

Five (5) __________
Six (6) __________
Seven (7) __________
Eight (8) __________
Nine (9) __________
Ten (10) __________
Eleven (11) ________
Twelve (12) ________
Thirteen (13) __________
Fourteen (14) __________
Fifteen (15) __________
Sixteen (16) __________
Seventeen (17) __________
Eighteen (18) __________
Nineteen (19) __________
Twenty (20) __________

14. What is the district-wide average daily absentee rate?

Number __________ (and) Percentage __________

15. What is the average daily absentee rate by grade level? (by percentage)

K ________
1st ________
2nd ________
3rd ________
4th ________
5th ________
6th ________
7th ________
8th ________
9th ________
10th ________
11th ________
12th ________

16. What is the district-wide drop-out rate of enrolled students?

Number ________ (and) Percentage ________

17. What is the drop-out rate by grade-level, number and percentage? (For the school year 1986-87)

	Number	Percentage
K	________	________
1st	________	________
2nd	________	________
3rd	________	________
4th	________	________
5th	________	________
6th	________	________
7th	________	________
8th	________	________
9th	________	________
10th	________	________
11th	________	________
12th	________	________

18. What is the drop-out rate by grade-level, number and percentage? (For the school year 1987-88)

	Number	Percentage
K	________	________
1st	________	________
2nd	________	________
3rd	________	________
4th	________	________
5th	________	________
6th	________	________
7th	________	________
8th	________	________
9th	________	________
10th	________	________
11th	________	________
12th	________	________

19. How many enrolled students were not promoted from one grade to the next last year?

K ________
1st ________
2nd ________
3rd ________
4th ________
5th ________
6th ________

7th ________
8th ________
9th ________
10th ________
11th ________
12th ________

20. What is the total enrollment in Special Education programs? (All Categories)

21. Of the total enrollment in Special Education Programs, how many students are also classified Limited-English-Proficient?

22. What is the total enrollment in programs for the gifted/talented?

23. Of the total enrollment in gifted/talented programs, how many students are also classified Limited-English-Proficient?

24. What is the total number of students in the district who have enrolled in post-secondary educational institutions in the past three years?

25. Provide the total number of students for each of the following categories:

de	Number Enrolled	Special Ed	ESL	Ch I Migrant	Ch II Regular	LEP	Non LEP	Native Spanish	Native English	Average English Proficiency (LAS)
h										
h										
h										
h										
h										
th										
ALS										

APPENDIX B

APPENDIX B

A STUDY

OF

THE SAN ELIZARIO BILINGUAL LEARNING COMMUNITY:

AN APPLICATION OF TECHNOLOGY TO READING/WRITING/MATHEMATICS/COMPUTER LITERACY

PROJECT CHARACTERISTICS QUESTIONNAIRE

This questionnaire is part of a study conducted by an independent evaluation team to evaluate the effectiveness of the above-named Title VII federally-funded project. All responses will be kept confidential and will appear in final evaluation reports only as sum totals of reduced data or information, and no staff member, community member, or student will be identified by name in these reports. Your cooperation in completing this questionnaire is vitally necessary to make the results of this study comprehensive and accurate.

THE SAN ELIZARIO BILINGUAL LEARNING COMMUNITY:

AN APPLICATION OF TECHNOLOGY TO READING/WRITING/MATHEMATICS/COMPUTER LITERACY

Project Characteristics Questionnaire

Instructions: This questionnaire is to be completed by the Project manager or Project administrative assistant. If exact numbers/figures are not available, provide an estimate and indicate that the number provided is an estimate. Unless otherwise specified, provide data for the school year 1987-1988.

---

1. Provide the total number of project students for each category below by grade level:

Grade	Number in Project	LEP	Non LEP	Low Income	Native Spanish	Native English	LAS Average English Proficiency	Averag Age
K								
1st								
2nd								
3rd								
4th								
5th								
6th								
7th								
8th								
9th								
10th								
11th								
12th								
TOTALS								

2. Of the total number of students enrolled in the project, how many are also enrolled in other programs listed in the following categories:

Grade	Special Education	Gifted/ Talented	English-as-a Second Language	Ch I Regular	Ch I Migrant
K					
1st					
2nd					
3rd					
4th					
5th					
6th					
7th					
8th					
9th					
10th					
11th					
12th					
TOTAL					

3. What is the least, the most, and the average length of time project students have participated in other programs listed below?

	Special Education	Gifted/ Talented	ESL	Ch I Regular	Ch I Migrant
Least					
Most					
Average					

4. How many students are enrolled in the project this school year?

5. Of the enrollment in the project, how many are new to the project to school year 1987-88?

6. Of the number of new enrollments in the project, how many students are newly arrived immigrants from a foreign country?

7. What is the average daily absentee rate in the project by grade level?

	Number	Percentage		Number	Percentage
K			7th		
1st			8th		
2nd			9th		
3rd			10th		
4th			11th		
5th			12th		
6th					

8. What is the drop out rate by grade level of students enrolled in the project? (For the school year 1986-87).

	Number	Percentage		Number	Percentage
K			7th		
1st			8th		
2nd			9th		
3rd			10th		
4th			11th		
5th			12th		
6th					

9. What is the drop out rate by grade level of students enrolled in the project? (For the school year 1987-88).

	Number	Percentage		Number	Percentage
K	________	________	7th	________	________
1st	________	________	8th	________	________
2nd	________	________	9th	________	________
3rd	________	________	10th	________	________
4th	________	________	11th	________	________
5th	________	________	12th	________	________
6th	________	________			

10. How many project students were not promoted from one grade to the next last year?

K ________
1st ________
2nd ________
3rd ________
4th ________
5th ________
6th ________

7th ________
8th ________
9th ________
10th ________
11th ________
12th ________

11. What is the number of project students by grade level who have exited the project to regular English language classrooms for each of the past two academic years?

	1985-86	1986-87
K		
1st		
2nd		
3rd		
4th		
5th		
6th		
7th		
8th		
9th		
10th		
11th		
12th		

12. What is the number of project students who have enrolled in post-secondary educational institutions in the past three years?

13. Which academic subjects are taught in the project? (Place check-mark under subject by grade level).

Grade	English Lang/Arts	Spanish Lang/Arts	Math	Science	Geography	Social Studies	Histor
K							
1st							
2nd							
3rd							
4th							
5th							
6th							
7th							
8th							
9th							
10th							
11th							
12th							

14. What is the typical method of providing instructional services in the projec by grade level? (Check all that apply).

Grade	Classroom Instruction	Lab	Resource Room	Tutoring
K				
1st				
2nd				
3rd				
4th				
5th				
6th				
7th				
8th				
9th				
10th				
11th				
12th				

15. What is the total number of staff (by category) assigned to the project?

Administrative _______ Teachers _______ Aides _______

APPENDIX C

APPENDIX C

A STUDY

OF

THE SAN ELIZARIO BILINGUAL LEARNING COMMUNITY:

AN APPLICATION OF TECHNOLOGY TO READING/WRITING/MATHEMATICS/COMPUTER LITERACY

PARENT ADVISORY COUNCIL (PAC) QUESTIONNAIRE

This questionnaire is part of a study conducted by an independent evaluation team to evaluate the effectiveness of the above-named Title VII federally-funded project. All responses will be kept confidential and will appear in final evaluation reports only as sum totals of reduced data or information, and no staff member, community member, or student will be identified by name in these reports. Your cooperation in completing this questionnaire is vitally necessary to make the results of this study comprehensive and accurate.

THE SAN ELIZARIO BILINGUAL LEARNING COMMUNITY:

AN APPLICATION OF TECHNOLOGY TO READING/WRITING/MATHEMATICS/COMPUTER LITERACY

Parent Advisory Council (PAC) Questionnaire

Instructions: This questionnaire is to be completed by the president and/or secretary of PAC. If exact information is not available, provide estimates and indicate that the information provided is an estimate. Unless otherwise specified, provide data for the school year 1987-88.

---

1. What is the total number of members in PAC?

Male ____ Female ____ Total ____

2. Indicate the language ability of PAC members? How many speak:

English only ____ Spanish only ____ Both ____

3. How many PAC members are school district employees (teachers, aides, administrators, service) or involved in school related functions, such as school board, etc.

4. How many members have children enrolled in the project?

5. How often does PAC meet?

6. List the dates and major topics of PAC meetings held during the past twelve months:

Date	Total Members Present	Topic

7. Describe other activities PAC has been involved in during the past twelve months: (e.g., fund-raising, material resources provision, school-related political activities, etc.)

8. List the ways PAC coordinates, represents, provides information to the community in general? (e.g., newsletter, report to school board, home visitations, etc.)

9. Describe the ways PAC influences school district policy:

10. Describe the relationship between PAC and school district administration: (e.g., cooperative, strained, etc.)

APPENDIX D

APPENDIX D

A STUDY

OF

THE SAN ELIZARIO BILINGUAL LEARNING COMMUNITY

AN APPLICATION OF TECHNOLOGY TO READING/WRITING/MATHEMATICS/COMPUTER LITERACY

PROJECT STAFF QUESTIONNAIRE

This questionnaire is part of a study conducted by an independent evaluation team to evaluate the effectiveness of the above-named Title VII federally-funded project. All responses will be kept confidential and will appear in final evaluation reports only as sum totals of reduced data or information, and no staff member, community member, or student will be identified by name in these reports. Your cooperation in completing this questionnaire is vitally necessary to make the results of this study comprehensive and accurate.

THE SAN ELIZARIO BILINGUAL LEARNING COMMUNITY:

AN APPLICATION OF TECHNOLOGY TO READING/WRITING/MATHEMATICS/COMPUTER LITERACY

Project Staff Questionnaire

Instructions: This questionnaire is to be completed by each member of the Project staff. If exact information is not available, provide estimates and indicate that the information provided is an estimate. Unless otherwise specified, provide data for the school year 1987-1988.

---

1. What project function/position do you hold (e.g., administration/ coordinator/teacher/aide)?

2. What is your highest degree?

3. What are your major and minor teaching areas?

4. What state credentials or university certificates do you hold? (e.g., ESL, Special Ed, Early Childhood, Administration, etc.)

5. In what academic year is your most recent college course or training?

6. What academic preparation do you have in the field of bilingual/ bicultural education?

   List total amount of college credit hours ____________________

   Specify areas (e.g., Language Arts, Math, Science, etc.) __________

7. How many years have you been instructing students?

8. How many years have you been instructing language-minority or limited English proficient (LEP) students?

9. What languages do you know? (Indicate fluency for each)
1 = little ability 2 = average ability 3 = full fluency

		Speak	Read	Write
Language One	__________	_____	_____	_____
Language Two	__________	_____	_____	_____
Language Three	__________	_____	_____	_____

The following questions are to be answered only by staff providing instruction to students.

10. What grade(s) do you teach?

K ____ 1st _____ 2nd _____ 3rd _____ 4th _____
5th ____ 6th _____ 7th _____ 8th _____ 9th _____
10th____ 11th _____ 12th _____

11. Where do you hold/provide instruction? (e.g., mainstream classrooms, resource room, lab, bilingual classroom, etc.)

12. What is the typical form of instructional group used in your classroom?

Whole group ______ Small group _____ Tutorial _____

13. Which subjects are taught by you?

____________ ____________
____________ ____________
____________ ____________
____________ ____________

14. If any, how many aides do you have in your classroom?

15. What percentage of time are the aides in your classroom involved in:

Instruction _____% Management _____% Tutorial _____%

16. What percentage of the instructional materials (texts, programs, etc.) used in your classroom are in:

English _____% Spanish ______%

17. What percent of instruction do you provide in:

English _____% Spanish _____%

18. For each academic subject listed below, provide the amount of time you or your aide spend in hours per week instructing; percentage of language type utilized; method of language use; and whether Regular English or Simplified English is used:

Subject	Hours per Week	English	Spanish	Alternating or Concurrent	Regular or Simplified English
Math	_______	_____%	______%	__________	________________
Science	_______	_____%	______%	__________	________________
Social Studies	_______	_____%	______%	__________	________________
History	_______	_____%	______%	__________	________________
Geography	_______	_____%	______%	__________	________________
Reading	_______	_____%	______%	__________	________________
Writing	_______	_____%	______%	__________	________________
Language Arts	_______	_____%	______%	__________	________________
Ethnic Heritage	_______	_____%	______%	__________	________________

19. How are students grouped in your classroom? (Check all that apply)

By age _____ By grade level _____

By language ability (e.g., LEP/LAS category) _____

By native language ________ By mixed language/language abilities ______

By academic/education attainment ___________
(e.g., based on standardized test scores)

20. What is the average daily number of students in your classroom?

21. Of that number, how many are:

LEP ________ Non-LEP _________

22. How many students in your classroom have the following as their home language:

English ______ Spanish ______ Other ______

23. How many students in your classroom would you consider to be bilingual?

Speaking ____ Reading ____ Writing ____ Comprehending _____

APPENDIX E

APPENDIX E

A STUDY

OF

THE SAN ELIZARIO BILINGUAL LEARNING COMMUNITY:

AN APPLICATION OF TECHNOLOGY TO READING/WRITING/MATHEMATICS/COMPUTER LITERACY

Evaluator Observation Survey Questionnaire

This questionnaire is part of a study conducted by an independent evaluation team to evaluate the effectiveness of the above-named Title VII federally-funded project. All responses will be kept confidential and will appear in final evaluation reports only as sum totals of reduced data or information, and no staff member, community member, or student will be identified by name in these reports. Your cooperation in completing this questionnaire is vitally necessary to make the results of this study comprehensive and accurate.

THE SAN ELIZARIO BILINGUAL LEARNING COMMUNITY:

AN APPLICATION OF TECHNOLOGY TO READING/WRITING/MATHEMATICS/COMPUTER LITERACY

Evaluator Observation Survey

Instructions: This survey is to be completed by project evaluators with information obtained during on-site observations.

Teacher's Name: ______________________ Grade Level(s) __________
Last First

Students' Age Levels ______________ Student Language Ability ________

Date: __________ Time Observed: From ______ To ______

1. Subject(s) of instruction: ______________________
(Math, Science, Reading, etc.)

2. Place of instruction: ______________________
(Classroom, lab, resource room, etc.)

3. Number of students receiving instruction: ______________

4. Type of grouping (Circle all that apply and percentage of time utilized):

Large group ____% Small group ____% Individualized ____%

5. Nature of instruction: ______________________
(Instructional, testing, introduction, etc.)

6. Aide available? (Circle one) Yes No

7. Language used by instructor during instruction. (Indicate percentage of time each used):

English ____% Spanish ____% Mix ____%

8. Type of program/software utilized. (Check all that apply):

Commercially prepared ___ Locally prepared ___ Other ___

9. Methodology of program/software: ______________________
(Instructional, game, tutorial, etc.)

10. Language utilized in program/software. (Check all that apply):

English _____ Spanish _____

11. Approximate student time on computer during observation:

____________ minutes

12. Language used between students during lesson. (Indicate percentage of time each used):

English _____% Spanish _____% Mix _____%

13. Problems encountered (Teacher/student)—Describe

____

____

____

14. Typical methodology of language use by instructor. (Check all that apply):

Concurrent _____ Alternating _____ Translation _____

15. Subject matter of textbook(s) utilized:

____

16. Language of textbook(s). (Check all that apply):

English _____ Spanish _____

17. Approximate time student engaged in specific tasks (e.g., workbook, self-study, peer-tutor, etc.) other than on computer or general instruction. Describe activity and percentage of time engaged:

______________ ____% ______________ ____%

______________ ____% ______________ ____%

______________ ____% ______________ ____%

18. Percentage of time aide spends in:

Instruction _____% Management _____% Tutoring _____%

19. Language use by aide. Indicate percentage of time each language is used:

English _____% Spanish _____%

20. Typical instructional methodology (teacher and/or aide) utilized. Indicate percentage of time each utilized:

Whole group lecture/demonstration ______%
Directing small groups ______%
Discussion activities ______%
"Drilling" techniques ______%
Directing/tutoring individual students ______%
Peer instruction/tutoring ______%

21. How often are home culture materials, concepts, etc. utilized in the classroom? (Circle one):

Never Sometimes Often Always

22. Describe the general use of language in other than instructional areas i.e., hallways, lunchroom, playground, etc.)

Indicate percentage of time utilized

	English	Spanish	Mix
Teacher -" Teacher	______%	______%	____%
Teacher -" Student	______%	______%	____%
Student -" Teacher	______%	______%	____%
Student -" Student	______%	______%	____%

23. NOTES:

APPENDIX F

FIRST PERIOD

COMPUTER FUNDAMENTALS OF MATH TEACHER:

LONG RANGE GOALS: TO BRING THE STUDENTS UP TO HIGH SCHOOL LEVEL MATH CONCEPTS AND TO PREPARE THEM FOR HIGHER LEVEL MATH COURSES. CONCEPTS TO INCLUDE: THE USE OF THE COMPUTER AS A CALCULATING TOOL. VARIOUS APPLICATION PROGRAMS FOR USE IN CALCULATING, ADDITION, SUBTRACTION, DIVISION, MULTIPLICATION WITH WHOLE NUMBERS. MATH OPERATIONS WITH FRACTIONS, WORD PROBLEMS RELATED TO USE IN EVERYDAY LIFE AND BUSINESS. BASIC ALGEBRAIC CONCEPTS AND COMPUTER PROGRAMMING IN APPLE BASIC.

DAILY ACTIVITIES:

09/01/87----->09/11/87 BASIC MATH OPERATIONS WITH WHOLE NUMBERS *

PRETEST: ADD/SUB/MULT/DIV WITH WHOLE NUMBERS *

PREVIEW LECTURE: BASIC MATH CONCEPTS IN ADD/SUB/MULT/DIV * BRIEF HISTORY ON DEVELOPMENT OF NUMBERS * MAYAN INDIAN CALCULATING CONCEPTS * MATH AS A LANGUAGE OF LOGIC AND NUMBER EXPRESSION * APPLICATION: EXERCISES ON ADD/SUB OPERATIONS WITH WHOLE NUMBERS * DIV/MULT

	OPERATIONS WITH WHOLE NUMBERS * ADD/SUB/ MULT/DIV CONCEPTS AS APPLIED TO EVERYDAY AND BUSINESS/PLANNING CONSUMER FINANCES/GROSS PAY. * NET PAY/WAREHOUSE INVENTORIES/BUYING FROM A CATALOG, ETC. *
REVIEW:	QUESTIONS AND DISCUSSION
EVALUATION:	QUIZ
09/14/87------>09/25/87	PROBLEM SOLVING APPLICATIONS WITH COMPUTERS*
PREVIEW LECTURE:	USE OF THE COMPUTER AS A WORD PROCESSOR FOR WORD PROBLEMS AND CALCULATING OPTIONS * USE OF THE COMPUTER WITH PROGRAM MODE APPLICATIONS *
APPLICATION:	EXERCISES ADD/SUB/SUB/MULT/DIV WHOLE NUMBERS WITH THE WORD PROCESSOR * PROGRAMMING WITH BASIC CONCEPTS * IMMEDIATE MODE * PROGRAM MODE *
REVIEW:	QUESTIONS AND ANSWERS
EVALUATION:	QUIZ
09/28/87------>10/09/87	MULTIPLICATION OPERATIONS WITH WHOLE NUMBERS WORD PROBLEMS.
LECTURE PREVIEW:	UNDERSTANDING THE USE OF LANGUAGE IN MATHEMATICAL PROBLEMS (CONTEXT CLUES) TERMINOLOGY * AND DEFINITIONS *
APPLICATION:	EXERCISES, ORDERING BY MAIL, TELEPHONE

	MESSAGE UNITS, CASHIER/CASH CONCEPTS.
REVIEW:	QUIZ
FIRST SIX WEEKS EXAM:	COVERS SAMPLES OF MOST IMPORTANT MATH CONCEPTS LEARNED IN THE SIX WEEK
PERIOD.10/12/87------>10/23/87	MATH OPERATIONS WITH PERCENT, DECIMALS, FRACTIONS, ADD/SUB/MULT/DIV.
LECTURE PREVIEW:	UNDERSTANDING THE CONCEPT OF MATH OPERATIONS WITH LESS THAN A WHOLE NUMBER * TERMINOLOGY, PERCENT OF A WHOLE ITS EXPRESSION IN DECIMAL AND FRACTIONAL TERM * CONVERSION TECHNIQUES FROM ONE EXPRESSION TO THE OTHER FOR CALCULATING PURPOSES * THE USE OF THESE CONCEPTS IN EVERYDAY LIFE AND BUSINESS *
APPLICATION:	EXERCISES MATH OPERATIONS WITH PERCENT * DECIMALS, AND FRACTIONS * BUYING FROM A CATALOG * SHOPPING * MEASURES LINER AND VOLUME * COOKING RECIPES, ETC. * INVERSION * CANCELLING AND THE MAKING OF A WHOLE NUMBER WHEN THE DENOMINATOR AND NUMERATOR ARE ALIKE *
REVIEW:	QUESTIONS AND ANSWERS
EVALUATION:	QUIZ
10/26/87------>11/06/87	MATH OPERATIONS WITH GRAPHS
PREVIEW LECTURE:	READING GRAPHS * TYPING OF GRAPHS * EXAMPLES

(POPULATION) * PRODUCTION ETC. * MAKING GRAPHS * MAKING GRAPHS ON COMPUTERS *

APPLICATION: EXERCISES CALCULATING POPULATION GROWTH WITH A GRAPH * CAR COSTS * MILES PER GALLON * PRODUCTION STATISTICS * FINANCE STATISTICS * SALES STATISTIC * TIME LINE STATISTICS *

REVIEW: STATISTICAL DATA IMPORTANT FOR FUTURE PLANNING AND PREDICTIONS * QUESTIONS AND DISCUSSION

EVALUATION: QUIZ

11/09/87------>11/20/87 FRACTIONAL CONCEPTS WITH WORD PROBLEMS

PREVIEW LECTURE: MATH OPERATIONS IN EVERYDAY LIVING AND BUSINESS THAT MAY REQUIRE CALCULATIONS WITH LESS THAN A WHOLE NUMBER *

APPLICATIONS: EXERCISES WITH TRAIN, BUS AND AIRPLANE SCHEDULES * PAYROLL TIME CARDS * COOKING RECIPES * CUSTOMARY MEASURES WITH FRACTIONS IN CONSTRUCTION * CARPET MEASURES * ROOM MEASUREMENTS ETC. *

REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

SECOND SIX WEEKS TEST TO COVER MOST IMPORTANT EXAMPLES OF CONCEPTS COVERED WITHIN THIS PERIOD.

11/23/87———>12/04/87 DECIMALS AND DECIMAL PLACES.

PREVIEW LECTURE: IMPORTANCE OF THE DECIMAL FOR IDENTIFYING THE TRUE VALUE OF A NUMBER * ESPECIALLY WHEN MONEY IS DUE OR OWED * THE ALIGNMENT OF DECIMALS IN DIFFERENT MATH OPERATIONS (ADD/SUB/MULT/DIV) * THE POWERS OR THE PLACE VALUES OF THE NUMBERS TO THE RIGHT OR THE LEFT OF THE DECIMAL PLACE *

APPLICATION: WRITING CHECKS * BUDGETS * CALCULATING FINANCIAL PROBLEMS (UTILITY BILLS, GROCERIES, CLOTHING) * COMPARISON SHOPPING*

REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

12/04/87———>12/18/87 INTRODUCTION TO BASIC ALGEBRA.

PREVIEW LECTURE: PRE-ALGEBRAIC CONCEPTS ORDER OF OPERATIONS * ALPHA CHARACTER AS REPRESENTATIONS OF VALUES KNOWN AS VARIABLES * VALUES DESIGNATED TO NUMBERS GIVEN IN ORDER TO COMPLETE THE OPERATION * CONSTANTS AS HELPERS TO FIND THE ANSWER TO MORE COMPLEX CALCULATIONS * TIME (SECONDS IN MINUTE, MINUTES IN HOURS, HOURS IN DAY, DAYS IN YEAR, WEEKS, MONTHS, ETC.) SPEED (SPEED OF SOUND, SPEED OF LIGHT) PERIMETER, AREA, VOLUME (PI, ROOTS, SQ,

	ROOTS) ETC.
APPLICATION:	DISCUSSION ON LOGIC AND SCIENTIFIC PROBLEM SOLVING (UNDERSTANDING, SEARCHING, DEVISING AND REVIEW) HOW THIS CONCEPTS HELP BUILD GOOD CHARACTER AND LEADERSHIP * EXERCISES ON UNITS OF LENGTH (METRIC) DISTANCE, PERIMETERS (SQUARES, RECTANGLES, PARALLELOGRAMS, TRIANGLES, AND TRAPEZOIDS) * AREA CALCULATION CONCEPTS TO BE INCLUDED *
REVIEW:	QUESTIONS AND ANSWERS
EVALUATIONS:	QUIZ
12/19/87------>01/03/88	CHRISTMAS VACATIONS.
01/04/88------>01/15/88	CONTINUATION OF FALL PERIOD LAST TWO WEEKS * REVIEW COMPUTER MATH OPERATIONS, BASIC PROGRAMMING.
PREVIEW LECTURE:	SYSTEMS COMMANDS * RESERVED WORDS * BASIC STATEMENTS * BASIC (BEGINNERS ALL-PURPOSE SYMBOLIC INSTRUCTION CODE) SYSTEMS SOFTWARE * APPLICATION SOFTWARE * IMMEDIATE MODE AND PROGRAM MODE APPLICATIONS *
APPLICATION:	WRITE AND CALCULATE WITH PROGRAMS IN THE IMMEDIATE MODE AND PROGRAM MODE * PROGRAMS FROM TEXT * PROGRAMS FROM TEACHERS RESOURCE

REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

FINAL SIX WEEKS EXAM TO COVER MOST IMPORTANT CONCEPTS INCLUDED WITHIN THE SIX WEEKS PERIOD.

01/18/88------>01/29/88 *** STUDENTS IN GROUPS, GROUP A STUDENTS WHO HAVEN'T HAD FOM AND GROUP B STUDENTS THAT ARE CONTINUING THE SECOND PART OF COMPUTER FOM.

BASIC MATH OPERATIONS REVIEW FOR BOTH GROUPS

PREVIEW LECTURE: MATH OPERATIONS WITH WHOLE NUMBERS * ADD/SUB /MULT/DIV.

GROUP A

APPLICATION: MAKING CHANGE * INVENTORIES * BUYING AUTOMOBILES WITH DIFFERENT OPTIONS * BUYING A HOUSE * BUYING PROPERTY * COMPARISON SHOPPING, ETC.

GROUP B

PREVIEW LECTURE: ADVANCED MATH OPERATIONS ON PERIMETER AND AREA.

APPLICATIONS: CONCEPTS IN MEASURING ANGLES * DIRECTION * MAP READING * MATH * USE OF PROTRACTOR * CIRCULAR COMPASS * DIRECTIONAL COMPASS * SURVIVAL DIRECTIONAL CONCEPTS * CONCEPTS IN MEASURING PROPERTY BOUNDARIES * CITIES, COUNTIES, STATES, AND NATIONS ETC. *

	CONCEPTS OF GRIDS LATTITUDE AND LONGITUDE * CONCEPT OF TRUE NORTH, MAGNETIC NORTH, GRID NORTH * THE COMPUTER AS A NAVIGATIONAL TOOL
REVIEW:	QUESTIONS AND ANSWERS
EVALUATION:	QUIZ
02/01/88------>02/05/88	BASIC MATH OPERATORS/ALGEBRAIC EXPRESSIONS AND ORIENTATION.
GROUP A	
PREVIEW LECTURE:	SUBSTRACTION OR MINUS CONCEPTS AS RELATED TO EVERYDAY LIVING AND BUSINESS * THE ZERO CONCEPT * HAVE AND DON'T HAVE * SCALE OF ZERO AND PLUS OR ZERO AND MINUS * NEGATIVE AND POSITIVE NUMBERS * SYMBOL FOR ZERO A MAYAN INDIAN CONCEPT * COMPUTER CONCEPTS WITH NEGATIVE AND POSITIVE NUMBERS *
APPLICATION:	EXERCISES WITH PAY ROLL, LOANS, INTEREST, BANKING, CHECKING ACCOUNTS, TIME ZONES, METER READINGS *
GROUP B	
PREVIEW LECTURE:	AS PER GROUP A LECTURE ON BASIC MATH OPERATIONS WITH EMPHASIS ON PREPARATION FOR HIGHER MATH FOR HIGHER LEVEL MATH COURSES * DISCUSSION ON MATH OPERATIONS WITH DIRECTIONS * ANGLES * TYPES OF ANGLES

	(ACUTE, RIGHT, OBTUSE), MAP READING * GROUND NAVIGATION (DAY & NIGHT) WITH A COMPASS * ORIENTATION WITH MAN MADE INSTRUMENTS AND NATURAL ENVIRONMENTAL SIGNS *
APPLICATION:	EXERCISES WITH TYPES OF ANGLES * MEASURING ANGLES * 180 DEGREE CONCEPTS (HALF CIRCLE), 360 DEGREE CONCEPTS (FULL CIRCLE) * MATH CONCEPTS WITH FULL CIRCLE * ROAD, GEOGRAPHY AND TOPOGRAPHIC MAP CONCEPTS *
EXTRA CURRICULAR:	PRACTICAL APPLICATION (OUTDOORS) IN READING ENVIRONMENTAL DIRECTIONAL SIGNS * BASIC DIRECTIONAL CONCEPTS WITH A LENSETIC COMPASS *
REVIEW:	QUESTIONS AND ANSWERS
EVALUATION:	QUIZ
02/08/88------>02/12/88	ROUNDING AND ESTIMATION/ADVANCED PERIMETER * AREA * VOLUME CONCEPTS.
GROUP A	
PREVIEW LECTURE:	ROUNDING AND ESTIMATION VISUAL ESTIMATION * USE OF TOOLS (RULERS, YARD STICKS, MEASURING TAPES, ETC.) * USE OF COMPUTER FOR CALCULATING DISTANCE * HEIGHT * DEPTH ETC. *
APPLICATION:	EXERCISES ESTIMATING DISTANCES BY EYE (OUTSIDE) DOCUMENT ON PAPER * MEASURING

*ESTIMATING AND ROUNDING OFF UNEVEN NUMBERS

* WHOLE NUMBERS AND FRACTIONS *

EXTRA CURRICULAR: DRAW A MAP OF SAN ELIZARIO IN RELATIONSHIP TO YOU HOME AND SCHOOL/HIGHLIGHT THE PATH YOU TRAVEL TO AND FROM SCHOOL EVERYDAY/ORIENTATE YOUR MAP WITH NORTH AT THE TOP.

GROUP B

PREVIEW LECTURE: ADVANCED ALGEBRA OPERATIONS IN PERIMETER, AREA, VOLUME WITH SQUARES, RECTANGLES, TRIANGLES, CIRCLES AND CYLINDERS, CONCEPT OF VARIABLES, VALUES, CONSTANTS, PI, POWERS OF A NUMBER, ROOTS, SQUARE ROOTS, DIAMETER, RADIUS AND CIRCUMFERENCE.

APPLICATION: EXERCISES WITH MATH OPERATIONS DEALING WITH CALCULATING PERIMETER, AREA, VOLUME AND CIRCUMFERENCE.

REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

02/15/88——>02/19/88

SECOND PERIOD

COMPUTER LITERACY

LONG RANGE GOALS: TO FAMILIARIZE WITH COMPUTER TECHNOLOGY CONCEPTS, THEIR RELATIONSHIP TOWARD THEIR DAILY LIVES AND ENVIRONMENT AND TO EXPOSE THEM TO CAREER OPPORTUNITIES AVAILABLE WITHIN THE REALM OF COMPUTER TECHNOLOGY.

COMPUTER LITERACY

TEACHER: ________

09/01/87——>09/11/87 PROBLEM SOLVING BEFORE COMPUTERS

PREVIEW LECTURE: CARTOON CHARACTER TOOL FROM HANDS TO ELECTRONIC MODES * BRIEF DISCUSSION ON FUTURISTIC DEVELOPMENTS *NANO, PICO CIRCUITRY AND EXPERIMENTATION WITH ARTIFICIAL INTELLIGENCE THE ULTIMATE GOAL OF COMPUTER TECHNOLOGY * EXPERIMENTATION WITH CULTURING BIOLOGICAL COMPONENTS *ARTIFICIAL NEURONS) FOR USE AS CHIPS.

APPLICATION: DO ALL LESSONS IN CHAPTER WITH INDIVIDUAL OR CLASSROOM DISCUSSIONS AS PROBLEMS ARISE.

REVIEW: DO CHAPTER REVIEW, QUESTIONS AND ANSWERS.

EVALUATION: QUIZ

09/14/87——>09/25/87 COMPUTERS EVERYWHERE.

PREVIEW LECTURE: COMPUTERS AROUND US THEIR USE, OBVIOUS AND

	NON-OBVIOUS COMPUTERS (HOME APPLIANCES, CLOCKS, CARS, ETC.) * COMING INTO CONTACT WITH OBVIOUS AND NON-OBVIOUS COMPUTERS.
APPLICATION:	READ CHAPTER I IN TEXT, DO ALL LESSONS IN CHAPTER.
EXTRA CURRICULAR:	HAVE STUDENTS MAKE A LIST OF AT LEAST 5 OBVIOUS AND NON-OBVIOUS COMPUTERS WITHIN THE SCHOOL OR COMMUNITY * DISCUSS IN CLASS * HAVE STUDENTS PROJECT INTO THE FUTURE AND DESCRIBE A SCHOOL OF THE FUTURE AND IF THEY WOULD LIKE TO BE A STUDENT THERE.
REVIEW:	DISCUSS FUTURE USE OF COMPUTES IN RELATION TO DAILY LIVING AND BUSINESS * QUESTIONS AND ANSWERS.
EVALUATION:	QUIZ, ON COMPUTER LITERACY, HANDS ON COMPUTER.

09/28/87———>10/09/87	A BRIEF HISTORY OF COMPUTERS.
PREVIEW LECTURE:	THE COMING OF THE MODERN COMPUTER, NOT AN OVERNIGHT INVENTION, FACED WITH NEWER AND MORE COMPLEX PROBLEMS * HOW CREATIVE PEOPLE DREW UPON THEIR KNOWLEDGE OF EARLIER IDEAS AND NEW SCIENTIFIC DEVELOPMENTS TO INVENT NEW SOLUTIONS FOR SOLVING THE COMPLEX PROBLEMS OF TODAY FASTER AND MORE ACCURATELY

* BIGGER DEMANDS BROUGHT ON BY THE INDUSTRIAL REVOLUTION FIRST, SECOND, THIRD, FOURTH GENERATION COMPUTERS * THE QUEST FOR ARTIFICIAL INTELLIGENCE *

APPLICATION: READ CHAPTER 3 * DO ALL LESSONS IN THE CHAPTER * STUDENTS TO HAVE ACCESS TO THE INNER COMPONENTS OF COMPUTERS FROM FIRST GENERATION TO FOURTH GENERATION, EXAMPLE: VACUUM TUBE, TRANSISTOR, LSI CHIP AND VLSI CHIP FOR HANDLING, OBSERVATION AND STUDY *

REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

10/12/87------>10/23/87 HARDWARE/SOFTWARE

PREVIEW LECTURE: COMPUTER HARDWARE, OUTER MAIN PARTS (4), KEYBOARD, MONITOR (CRT) CATHODE RAY TUBE, DISK DRIVE, STORAGE, THE FUNCTION OF EACH PART, INPUT, OUTPUT OR BOTH I/O DEVICES * CENTRAL PROCESSING UNIT (cpu) AND ITS COMPONENTS, INPUT, PROCESSING, OUTPUT, ARITHMETIC LOGIC UNIT (ALU), COMPILER * SOFTWARE, DISKETTES, REEL TAPE CASSETTE TAPE, PARTS OF A DISKETTE, PAPER JACKET FOR PROTECTION, PLASTIC COVER AND MAGNETIC DISK * DISK HANDLING, INITIALIZATION OR

	FORMATTING A DISK *
APPLICATION:	STUDENTS TO BE SHOWN INSIDE OF AN APPLE IIE COMPUTER AND SHOWN WHERE ALL THE MAIN
REVIEW:	QUESTIONS AND ANSWERS
EVALUATION:	QUIZ
10/26/87------>11/06/87	SOFTWARE
PREVIEW LECTURE:	THE IMPORTANCE OF SOFTWARE TO THE COMPUTER SYSTEM, THE SYSTEM IS NOTHING WITHOUT IT, SOFTWARE PROVIDES FOR INSTRUCTION, APPLICATION FOR SPECIFIC TASKS AND SYSTEMS UTILITIES FOR BETTER CONTROL AND GENERAL TASKS 8 TWO CATEGORIES OF SOFTWARE APPLICATION AND SYSTEMS UTILITIES THEIR FUNCTION AND CAPABILITIES *
APPLICATION:	READ CHAPTER 5. DO ALL LESSONS IN THE CHAPTER. STUDENTS TO HAVE ACCESS TO SEVERAL TYPES OF SOFTWARE 8 LEARN HOW TO MANIPULATE THEM AND LEARN THE CAPABILITIES OF EACH, EXAMPLES: APPLICATION, SYSTEMS, SIMULATION, ANIMATION AND GRAPHICS.
REVIEW:	QUESTIONS AND ANSWERS
EVALUATION:	QUIZ
11/09/87------>11/20/87	WORD PROCESSING
PREVIEW LECTURE:	INTRODUCTION OF WORD PROCESSORS, APPLE

WORKS, SUNBURST, BANKSTREET WRITER, USE OF WORD PROCESSOR FOR WRITING OPERATIONS AND CALCULATING * DISCUSS CONCEPT OF THE WORD PROCESSOR AS AN ELECTRONIC WRITING TOOL THAT TURNS THE COMPUTER INTO AN ELECTRONIC TYPEWRITER * COMPARE THE COMPUTER WITH THE TYPEWRITER *

APPLICATION: DO ALL ASSIGNMENTS WITH COMPUTER USING WORD PROCESSOR (BANKSTREET WRITER) * READ CHAPTER 6 * DO ALL LESSONS WITHIN THE CHAPTER *

REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

11/23/87------>11/04/87 CONTINUE WORD PROCESSING * INTRODUCTION TO DATA BASE TOOLS AND OPERATIONS

PREVIEW LECTURE: ORGANIZATION OF INFORMATION BEFORE COMPUTERS * EXAMPLE THE U.S. CENSUS--TOOK TEN YEARS OR MORE EVENTUALLY TO FINISH IT. SOMETIMES IT HAD TO BE TAKEN WHILE THE LAST COUNT WAS STILL TAKING PLACE * HERMAN HOLLERITH'S INVENTION OF ENIAC, THE FIRST TRUE COMPUTE SAVED THE DAY * TODAY'S INFORMATION GATHERING AND ORGANIZATION ARE ACCOMPLISHED IN MINUTES OF A FEW HOURS.

APPLICATION: READ CHAPTER 7, WRITE 5 PAGE ESSAY USING THE

	WRITING CONCEPTS AS OUTLINED IN THE TEXT, PRE-WRITING, OUTLINING, DRAFT, FINAL COMPOSITION * WRITING TWO DATA BASES, ONE LIST OF EMERGENCY PHONE NUMBERS, ANOTHER OF FREQUENTLY CALLED NUMBERS OR CHRISTMAS LIST TO BE ORGANIZED IN ALPHABETIC ORDER * DO ALL LESSON IN THE CHAPTER *
REVIEW:	DISCUSSION ON THE DIFFERENCES OF WORD PROCESSING AND DATA BASES * WORD PROCESSING--WRITING TEXT * DATA BASE--ORGANIZATION OF INFORMATION TO CREATE FILES * QUESTIONS AND ANSWERS *
EVALUATION:	QUIZ
12/07/87——>12/18/87	SPREADSHEET TOOLS
PREVIEW LECTURE:	CALCULATING BEFORE COMPUTERS, BLAISE PASCAL THE MATHEMATICIAN WHO DEVELOPED THE FIRST MECHANICAL TABULATING TOOLS * DISCUSS AND COMPARE THE DECIMAL SYSTEM AND THE BINARY SYSTEM USED IN COMPUTERS. WHY USED IN COMPUTERS? * DISCUSS THE DIFFERENCE BETWEEN A WORK PROCESSOR, DATA BASE AND A SPREADSHEET TOOL.
APPLICATION:	READ CHAPTER 8, DO ALL LESSON IN CHAPTER
REVIEW:	QUESTIONS AND ANSWERS

EVALUATION: QUIZ

12/19/87——>01/03/88 CHRISTMAS VACATIONS

01/04/88——>01/15/88 GRAPHICS AND COMMUNICATIONS TOOL

PREVIEW LECTURE: DISCUSS THE CONCEPT OF ALL OTHER COMPUTER TOOLS DISCUSSED SO FAR AS BEING EXTENSIONS OF TOOLS THAT PREDATED COMPUTERS, INTRODUCE THE TWO LATEST SETS OF COMPUTER TOOL WHICH ARE TRUE PRODUCTS OF THE TWENTIETH-CENTURY TECHNOLOGY COMPUTER GRAPHICS THE RESULT OF COMBINING VIDEO AND COMPUTER TECHNOLOGIES AND COMPUTER COMMUNICATIONS A BLEND OF TELEPHONE AND COMPUTER TECHNOLOGIES. * THE USE OF GRAPHICS AND COMMUNICATIONS TO SOLVE PROBLEMS *

APPLICATION: READ CHAPTER 9, DO ALL LESSONS IN THE CHAPTER. STUDENTS TO INTERACT WITH A GRAPHICS PROGRAM AND LEARN TO USE IT * COMMUNICATIONS PROGRAMS ARE NOT AVAILABLE AS SCHOOL DOES NOT HAVE ON HAND AT THIS TIME, THEY WILL BE DISCUSSED IN FULL.

REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

FINAL SIX WEEKS EXAM TO INCLUDE ALL CONCEPTS COVERED IN TEXT TO THIS POINT.

01/18/88———>01/22/88	CLASS SPLIT IN TWO GROUPS A/B, A FOR BEGINNERS, B FOR SECOND PART STUDENTS.
	COMPUTERS ARE EVERYWHERE
GRP A PREVIEW LECTURE	MOST BIG BUSINESS AND GOVERNMENT OPERATIONS ARE COMPUTERIZED * SMALL BUSINESSES ARE ALSO BENEFITING FROM COMPUTERS IN TERMS OF SPEED, ACCURACY AND EFFICIENCY * HOMES ARE THE LAST FRONTIER IN SALES, BUT EVERYDAY MORE AND MORE PRIVATE HOMES ARE BECOMING COMPUTERIZED AND AUTOMATED * DR. KEMENNY, ONE OF THE DEVELOPERS OF BASIC THE MOST COMMON COMPUTER LANGUAGE IN USE TODAY PREDICTS THAT IN 5 YEARS THE PERSON WHO CANNOT USE COMPUTERS THEN WILL BE JUST A IGNORANT AS A PERSON WHO CANNOT READ TODAY *
APPLICATION:	READ CHAPTER 1, DO ALL LESSONS IN THE CHAPTER
	COMPUTER TOOLS IN SOCIETY
GRP B PREVIEW LECTURE:	THE FOUR MAIN COMPUTER TOOLS IN SOCIETY TODAY * WORD PROCESSORS, DATA BASES, SPREADSHEETS, AND GRAPHICS AS APPLIED TO MODERN EVERYDAY LIVING AND BUSINESS IN KEEPING AMERICA STRONG AND AHEAD IN

TECHNOLOGY SO THAT WE MAY KEEP THE AMERICAN DREAM AND CONTINUE TO SECURE THEM FOR FUTURE GENERATIONS.

APPLICATIONS: READ CHAPTER 10, DO ALL LESSONS IN THE CHAPTER.

REVIEW: USE OF THE WORD PROCESSOR FOR WRITING AND CALCULATING * USE OF SPREADSHEET TOOL * USE AND DEVELOPING DATA BASES * USE GRAPHIC TOOLS *

EVALUATION: QUIZ

01/25/88------>01/29/88 PROBLEM SOLVING BEFORE COMPUTERS

GRP A

PREVIEW LECTURE: BRIEF HISTORY ON DEVELOPMENT OF COMPUTERS FROM COUNTING ON HANDS TO OUR PRESENT DAY ELECTRONIC TECHNOLOGY * TOOLS FROM ABACUS TO COMPUTERS * IMPORTANT FIGURES THAT CONTRIBUTED TO DEVELOPMENT OF COMPUTER TECHNOLOGY * CHARLES BABBAGE ANALYTICAL ENGINE * HERMAN HOLLERITH ENIAC COMPUTER ETC

APPLICATION: READ CHAPTER 2, DO ALL LESSONS IN CHAPTER.

GRP B CONTINUE WORK ON CHAPTER 10 COMPUTER TOOLS IN SOCIETY *EXTRA TIME ALLOTTED DUE TO OTHER EXTRA CURRICULAR SCHOOL ACTIVITIES, REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

02/01/88------>02/05/88 BRIEF HISTORY OF COMPUTERS

GRP A

PREVIEW LECTURE: HISTORIC COUNTING CONCEPTS * HANDS PROBABLE SOURCE FOR OUR CUSTOMARY DECIMAL SYSTEM OF COUNTING * USE OF THE HANDS FOR CALCULATING, MULTIPLYING BY 9, ADDING AND SUBTRACTING CONCEPTS * MODERN DAY HAND CALCULATING TECHNIQUES * CHISEN BOB A KOREAN CONCEPT * DEVELOPMENT OF THE BINARY SYSTEM A MUST FOR COMPUTERS FOR LIGHTER LESS COMPLICATED AND CHEAPER COMPUTER * INTRODUCTION TO ASCII CODE

APPLICATION: READ CHAPTER 3, DO ALL LESSON IN CHAPTER

REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

COMPUTER LANGUAGES

GRP B

PREVIEW LECTURE: INTRODUCTION AND DISCUSSION OF COMPUTER LANGUAGES REASONS FOR THE DIFFERENT TYPES AND WHO USES THEM * BASIC A SIMPLE LANGUAGE FOR ALL COMPUTER USERS * PASCAL A LESS LIMITED LANGUAGE FOR MORE COMPLEX USERS

OPERATIONS * COBOL FOR THE BUSINESS ORIENTED * FORTRAN FOR THE SCIENCE ORIENTED * ADA FOR USE BY THE MILITARY * AND MANY OTHER HIGH LEVEL LANGUAGES TO FIT THE NEED OF THE USER

APPLICATION: INTRODUCTION TO BASIC COMPUTER PROGRAMMING * READ CHAPTER 11, DO ALL LESSONS IN CHAPTER

REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

02/08/88------>02/12/88 THE COMPUTER SYSTEM: HARDWARE/SOFTWARE

GRP A

PREVIEW LECTURE: THE COMPLETE COMPUTER SYSTEM * THE FOUR MAIN OUTER PARTS * THE KEYBOARD * MONITOR * DISK DRIVE * STORAGE * THE MAIN INNER COMPONENTS THE CPU, INPUT, PROCESSING OUTPUT, COMPILER, AND THE ALU.

APPLICATION: STUDENTS TO BE SHOWN THE OUTSIDE AND THE INSIDE OF AN APPLE IIE COMPUTER AND SHOWN THE PARTS THEIR FUNCTION AND LOCATION * READ CHAPTER 4, DO ALL LESSONS IN THE CHAPTER.

GRP B

PREVIEW LECTURE: INTRODUCTION TO THE CONCEPTS OF PROBLEM SOLVING THROUGH LOGIC AND FACTS * PLANNING, SEARCHING, DEVELOPING * REVIEW AND TESTING * PROBLEMS WRITTEN IN LOGICAL FORMAT * IPO CHART STARTING WITH OUTPUT * PROCESSING AND INPUT CODING * WRITING A FLOWCHART AND TRANSFERRING THE DATA TO BASIC PROGRAM * PROGRAM FORMAT * TOP DOWN DESIGN * SUBROUTINES * SYSTEMS COMMANDS * RESERVED WORD FOR BASIC PROGRAMMING * PROPER USE OF BASIC STATEMENTS IN PROGRAM WRITING * LITERAL AND NUMERIC OPERATORS

APPLICATION: READ CHAPTER 12, DO ALL LESSONS IN THE

CHAPTER

REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

FOURTH AND SIXTH PERIOD

COMPUTER SCIENCE TEACHER ________

COMPUTER SCIENCE

LONG RANGE GOALS: TO GIVE THE STUDENT THE OPPORTUNITY TO INTERACT WITH A COMPUTER SYSTEM, ITS USE, POSSIBILITIES, MAKE-UP AND THE POTENTIAL FOR PREPARING FOR A CAREER IN COMPUTER TECHNOLOGY.

09/01/87------>09/11/87 THE COMPUTER SYSTEM

PREVIEW LECTURE: HARDWARE, THE FOUR MAIN PARTS * KEYBOARD, MONITOR, DISK DRIVE, STORAGE * KEYBOARD: FUNCTIONS OF THE KEYS * PROCEDURE FOR TURNING ON THE APPLE COMPUTER * 1. LOAD PROGRAM * 2. TURN ON MONITOR * 3. TURN ON KEY BOARD * 4. WAIT FOR PROGRAM MENU OR INSTRUCTIONS * 5. PROCEED WITH TASK * HARDWARE FUNCTIONS AS INPUT, OUTPUT, INPUT/OUTPUT DEVICES TYPES OF SOFTWARE: SYSTEMS AND APPLICATION, SYSTEMS HELP THE USER IN CONTROLLING THE COMPUTER ON A NUMBER OF TASKS * APPLICATION HELPS THE USER TURN

THE COMPUTER INTO A TOOL FOR PERFORMING A SPECIFIC TASK * INTRODUCTION TO SYSTEMS COMMANDS, IMMEDIATE MODE, PROGRAM MODE, BASIC RESERVED WORDS AND THE BASIC LANGUAGE (BEGINNER'S ALL-PURPOSE SYMBOLIC INSTRUCTION CODE) *

APPLICATION: STUDENTS TO TAKE NOTES AS PER LECTURE AND PARTICIPATE IN CLASS DISCUSSION ON THE SUBJECT MATTER COVERED * STUDENTS GO THROUGH PROCEDURE OF FORMATTING A DISKETTE ON THE SYSTEMS UTILITIES FOR PROGRAMMING PROJECTS AND TO FORMAT ANOTHER DISK ON THE WORD PROCESSOR FOR WRITING ASSIGNMENTS * ALL ASSIGNMENTS TO BE DONE ON THE COMPUTER AND PRINTED ON THE PRINTER * ALL ASSIGNMENTS TO BE GRADED ON PROPER FORMAT, NEATNESS, AND ACCURACY *

REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

09/14/87------>09/25/87 WORD PROCESSING/COMPUTER PROGRAMMING

PREVIEW LECTURE: USE OF THE COMPUTER AS A WRITING TOOL * KEYBOARDING TO CONTROL WORD PROCESSOR PROGRAMS, MAIN KEY FUNCTIONS, TYPES OF WORD PROCESSORS (APPLE WORKS, UTILITIES SYSTEMS

80 COLUMN WORD PROCESSOR, SUNBURST, FILERS) * TYPES OF MENUS AND HOW TO USE THEM * WRITING TECHNIQUES, DATA BASE ORGANIZATION AND APPLICATIONS * UTILITIES SYSTEMS PROGRAM MODE TECHNIQUES, BASIC PROGRAM WRITING * LITERAL AND NUMERIC DATA CONCEPTS AND THEIR APPLICATION.

APPLICATION: STUDENTS TAKE NOTES, LIST OF 17 RESERVED WORDS FOR USE IN PROGRAMMING (AS PER TEACHER'S LIST) * STUDENTS TO WRITE ONE SIMPLE LITERAL PROGRAM AND ONE NUMERIC PROGRAM AND MAKE CHANGES AS PER TEACHER'S EXAMPLE * STUDENTS TO WRITE A 5 PAGE ESSAY ABOUT THEIR SUMMER VACATION ON WHETHER THEY ENJOYED IT OR NOT * STUDENTS TO SAVE AND PRINT THEIR ESSAYS *

REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

FIRST SIX TEST TO COVER ALL MAIN CONCEPTS TO THIS TIME

09/28/87------>10/09/87 PROGRAMMING WITH APPLE SOFT BASIC

PREVIEW LECTURE: CONTINUATION OF COMPUTER PROGRAMMING CONCEPTS FOR BETTER CONTROL OF THE COMPUTER * BASIC ANOTHER MEDIUM FOR EXPRESSION AND COMMUNICATION WITH COMPUTERS * PROGRAM

FORMAT FOR USE OF REM (REMARK) STATEMENTS, PRINT STATEMENTS, READ STATEMENTS, INPUT STATEMENTS AND GO TO STATEMENTS, THEIR FUNCTION AND WHEN TO USE THEM *

APPLICATION: WRITE PROGRAMS USING THESE STATEMENTS AS PER TEACHER'S RESOURCE * DISCUSS LINE FOR LINE WHAT EACH STATEMENT DOES * DEBUG TO CORRECT, DEBUG ANY ERRORS THAT MIGHT EXIST WITHIN THE PROGRAMS *

REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

10/12/87------>10/23/87 DATA BASE ORGANIZATION, CONCEPTS AND APPLICATIONS

PREVIEW LECTURE: DATA BASE THE ACT OF GETTING RAW DATA ORGANIZING IT INTO USABLE INFORMATION BY RELATIONSHIP OF ITEMS TO ONE ANOTHER AND THEIR IMPORTANCE TO THE SYSTEM * SIMPLE TYPES OF DATA BASES NAME LISTS, PHONE LISTS, EMERGENCY NUMBER LISTS, MAILING LISTS, ETC. * COMPLEX DATA BASES POLICE RECORDS, SCHOOL RECORDS, CUSTOMER RECORDS, PURCHASES AND SALES RECORDS AND INVENTORIES (RECORDS ARE A GROUP OF FILES, FILES ARE DATA ON ONE PARTICULAR ITEM.

APPLICATION: NOTES ON DATA BASE VOCABULARY AS PER TEACHER'S LIST * WRITE AN EMERGENCY PHONE NUMBER DATA BASE FOR USE AT HOME * WRITE A FREQUENTLY CALLED NUMBERS DATA BASE FOR USE AT HOME * NOTES AND DATA BASE LISTS TO BE WRITTEN AND PRINTED WITH THE BANKSTREET WRITER PROGRAM * WRITE A SIMPLE DATA BASE PROGRAM THAT WILL CALCULATE THE HEIGHT OF A PERSON WITH PARAMETERS WHICH COULD MAKE THE PERSON COMPATIBLE TO YOU (PROGRAM AS PER TEACHER'S RESOURCE) WRITE A DATA BASE OPEN FILES PROGRAM (PROGRAM AS PER TEACHERS RESOURCE) * BOTH PROGRAMS TO BE WRITTEN WITH THE APPLE SYSTEMS UTILITIES PROGRAM MODE *

REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

10/26/87------>11/06/87 WORD PROCESSING CONCEPTS AS RELATED TO HOME AND BUSINESS

PREVIEW LECTURE: WORD PROCESSING IN THE HOME: EXAMPLES: WRITING LETTERS, SONG POETRY AND STORY WRITING, EDUCATION FOR STUDENTS IN SPELLING AND WRITING, HOME WORK PROJECTS * WRITING ESSAYS AND RESEARCH PAPERS ETC. * BUSINESS CONCEPTS: EXAMPLE: CORRESPONDENCE MAIL, CONCEPTS: EXAMPLE: CORRESPONDENCE MAIL, MEMOS, SCHEDULING, REPORTS, SPEECHES, ETC. *

APPLICATION: STUDENTS TO WRITE A STORY WITH TOPIC OF THEIR CHOICE (3 PAGES) OR COMPOSE A POEM AT LEAST ONE PAGE LONG * STUDENTS TO WRITE A BUSINESS LETTER TO A PERSPECTIVE CUSTOMER AND ATTEMPT TO SELL A PRODUCT, EXAMPLE PRODUCT: HAIR SHAMPOO, RUG CLEANER, BABY POWDER ETC. *

REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

SECOND SIX WEEKS TEST TO COVER ALL CONCEPTS COVERED TO THIS TIME

11/09/87------>11/20/87 DATA BASE/HOME/BUSINESS

PREVIEW LECTURE: COMPARISON CONTRAST BETWEEN WORD PROCESSING AND DATA BASE, WORD PROCESSING THE PROCESS OF ORGANIZING TEXT IN GENERAL INTO A LEGIBLE SEQUENCE OF UNDERSTANDING FOR READING *EXAMPLE: RESEARCH PAPER OR BOOK, DATA BASE THE ORGANIZATION OF INFORMATION INTO A LOGICAL SEQUENCE BASE ON A FIELD ELEMENT RELEVANT TO WHICH EVER WAY A PERSON OR BUSINESS SEES FIT FOR THEIR NEED (EXAMPLE: lAST NAMES OF PERSONS, DATE, CHRONOLOGICALLY BY YEAR OR EVENTS ETC. (HOME DATE BASES

NAME LISTS, PHONE LISTS, COOKING RECIPES, ETC. (BUSINESS DATA BASES PERSONNEL FILES AND RECORDS, INVENTORIES, ETC. *

APPLICATION: STUDENTS TO WRITE 3 ITEMS THAT COULD MAKE A USEFUL DATA BASE FOR THE HOME * CHOOSE ONE ITEM AND WRITE A DATA BASE FOR IT TO ACTUALLY BE USED AT HOME * STUDENTS TO WRITE 3 ITEMS THAT COULD BE A USEFUL DATA BASE FOR A BUSINESS * CHOOSE ONE ITEM AND WRITE A DATA THAT COULD BE USED IN A BUSINESS *

REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

11/22/87----->12/04/87 ELEMENTS OF BASIC/PROBLEM SOLVING

PREVIEW LECTURE: MENTAL AND PHYSICAL STAMINA AND ATTITUDE ARE A MUST TO A COMPUTER PROGRAMMER * A GOOD UNDERSTANDING OF MATHEMATICAL OPERATORS I ESSENTIAL FOR WRITING SIMPLE AND COMPLEX PROGRAMS * REVIEW OF SOME MATH OPERATORS TO BE USED IN PROGRAMMING EXAMPLES ORDER OF OPERATIONS, VOLUME, PERIMETER, AREA, AVERAGES, NET PAY AND GROSS PAY * INTRODUCTION TO SYSTEMS COMMANDS * BASIC STATEMENTS * UTILITY AND APPLICATION PROGRAM CONCEPTS *

APPLICATION: STUDENTS TO LEARN PROGRAMMING FORMAT FROM WRITTEN OR SPOKEN PROBLEM THROUGH IPO, FLOWCHART AND THE WRITING OF A WORKABLE PROGRAM * STUDENTS TO WRITE ONE LITERAL AND ONE NUMERIC PROGRAM * DEBUG, RUN AND PRINT THEM ON THE PRINTER *

REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

12/07/87------>12/18/87 GRAPHICS/HOME/BUSINESS/RECREATION

PREVIEW LECTURE: GRAPHICS OF THE LATEST IN MODERN DAY COMPUTER TECHNOLOGY AND CONCEPT * A MARRIAGE OF SEVERAL TECHNIQUES VISUAL, GRAPHICS, ANIMATION AND WRITING * MAY BE APPLIED READILY TO HOME OR BUSINESS, EXAMPLES: HOME-VIDEO GAMES, PLOTTING CHARTS FOR EXPENSES, CHILDREN'S EDUCATIONAL CONCERNS ETC. * BUSINESS-PLOTTING GRAPHS FOR LOSS, PROFITS, SALES, QUALITY CONTROL ETC. * SIMULATIONS, PREDICTIONS * MAY BE USED TO ENHANCE OTHER SOFTWARE CONCEPTS * EXAMPLE DATA BASE TECHNIQUES WITH GRAPHICS *

APPLICATION: STUDENTS TO WORK WITH A NUMBER OF GRAPHICS PROGRAMS THAT DO NUMBER OF THINGS, RUN THEM AND PRINT OUT * STUDENTS TO LEARN GRAPHICS

BASIC STATEMENTS AND FORMAT GRAPHICS THAT CREATE A CHESSBOARD, CIRCLE, TRIANGLE AND UFO ACROSS THE SCREEN * STUDENTS TO ANSWER THE QUESTION, HOW COULD YOU USE A GRAPHICS PROGRAM TO ENHANCE A DATA BASE PROGRAM? WRITE A COMBINED DATA BASE WITH GRAPHICS. (AS PER TEACHERS RESOURCE) *

REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

12/19/87——>01/03/88 CHRISTMAS VACATION

01/04/88------>01/15/88 PROBLEM SOLVING TECHNIQUES WITH APPLE SOFT BASIC

PREVIEW LECTURE: FOUR STEP METHOD OF PROBLEM SOLVING (1) UNDERSTANDING (2) SEARCHING (3) DEVISING (4) REVIEW * HOW THIS PROBLEM SOLVING RELATED TO LOGIC,, COMMON SENSE, CREATIVITY TRAITS OF GOOD CHARACTER AND LEADERSHIP, A DOOR TO SUCCESS * MATHEMATICS THE LANGUAGE OF LOGIC AND ITS RELATIONSHIP TO COMPUTER TECHNOLOGY * EXAMPLES: BINARY SYSTEM FOR THE ASCII CODE, MATH AND ALGEBRAIC EXPRESSION FOR COMPUTER PROBLEM SOLVING *

APPLICATION: STUDENTS TO TAKE NOTES ON LECTURE * WRITE DOWN MATH AND ALGEBRAIC OPERATORS USED I;N COMPUTER PROBLEM SOLVING AS PER TEACHERS LIST * WRITE FOUR PROGRAMS, RUN THEM AND PRINT THEM OUT, PROGRAM ONE, AVERAGES, PROGRAM TWO, DISCOUNT, PROGRAM THREE, WEEKLY SALARY, PROGRAM FOUR, UNIT PRICE

REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

FINAL SEMESTER EXAM TO COVER ALL IMPORTANT MATERIAL COVERED TO THIS TIME

01/18/88------>01/22/88 THE COMPLETE COMPUTER SYSTEM/INNER AND OUTER COMPONENTS

PREVIEW LECTURE: THE MAIN OUTER COMPONENTS IN THE MAKE-UP OF

A COMPLETE COMPUTER SYSTEM, KEYBOARD, MONITOR, DISK DRIVE AND STORAGE * THE FUNCTION AS INPUT, OUTPUT OR BOTH * PERIPHERALS AS TOOL TO ENHANCE THE COMPUTER SYSTEM THEIR FUNCTION, CPU, ALU, COMPILER, INPUT AND OUTPUT, POWER PACK

APPLICATION: STUDENTS TO TAKE NOTES AS PER TEACHERS RESOURCE * NOTES TO BE SAVED IN THE BANKSTREET WRITER AND PRINTED OUT.

REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

01/25/88------>01/29/88 SYSTEM FILES COMMANDS/BASIC RESERVED WORDS

PREVIEW LECTURE: SYSTEMS FILES COMMANDS PRE-PROGRAMMED MEMORY BUILT INTO COMPUTERS AT MANUFACTURER TO CONTROL THE COMPUTER SYSTEM ITSELF * ROM AND RAM MEMORY AND ITS FUNCTION, ROM FOR READ ONLY MEMORY, SHORT TERM * RAM FOR RANDOM ACCESS MEMORY, LONG TERM MEMORY * BASIC RESERVED WORD TO BE USED AS STATEMENTS FOR CONTROL AND COMMUNICATION BETWEEN USER AND COMPUTER *

APPLICATION: STUDENTS TO TAKE NOTES AND WRITE A LIST OF TERMS AS PER TEACHERS NOTES * STUDENTS TO USE WORD PROCESSOR TO TAKE NOTES, SAVE AND

PRINT.

REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

02/01/88------>02/05/88 GETTING STARTED WITH BASIC/USE OF SYSTEMS COMMANDS AND RESERVED WORDS

PREVIEW LECTURE: REVIEW ALL ASPECTS OF PROGRAMMING TECHNIQUES COVERED TO THIS POINT.

APPLICATION: STUDENTS TO WRITE TWO PROGRAMS FOR PRACTICE FROM TEACHERS RESOURCE * GRAPHIC PROGRAM, WRITE, SAVE, PRINT OUT * TIME CALCULATOR, WRITE, SAVE, PRINT OUT * MODIFY TIME CALCULATOR TO CALCULATE FROM SECONDS IN A DAY TO SECONDS IN A YEAR AS PER TEACHERS EXAMPLE.

REVIEW: QUESTIONS AND ANSWERS

EVALUATION: QUIZ

02/02/88------>02/12/88 ELEMENTS OF BASIC/SYNTAX AND LOGIC

APPENDIX G

APPENDIX G

INVENTORY-ELEMENTARY LEVEL

SOFTWARE

AEN Grading System
The Report Card
Apple Works
The Locksmith
Word Attack (2)
Speed Reader II (2)
Spanish--Basic Vocabulary Builder (2)
McIntosh
Echo--Speech, Music and Sound Synthesizer
Master Type (2)
Math Maze
Microzine (2)
MECC Diskettes (12)
Castle Wolkenstein
Lode Runner (2)
Star Blazer/Falcons/ (4)
Educational Games (UTEP) (2)
MECC Disketes (9)
Microcomputer Software
Crossword Magic
Wizard of Words
Spelling & Reading Primer
Calendar Skills
Basic Sight Words (2)
Elwall's Basic Sight Words (4)
Bank Street Writer

Story Tree
    Prefixes--UN, RE, DIS, PRE, IN (4)
    Sound Associations (Affixes, Syllables, Contractions, Homonyms (4)

Science
    Life in the Oceans
    The Solar System
    Plants and How They Grow
    Our Bodies
    Living Things
    Matter and Energy
    Good Health Habits
    Electricity
    Earth and its Composition

Elementary--Social Studies
    Furs, NOMAD, Oregan Trail, Sumeria, Voyagem (4)

Idea Cat--CAI with Speech
English--Basic Vocabulary Builder
Elephant Ears--Prepositons (4)
CEEDE--Action Words (2)
CEEDE--Things Around Us (2)
Number Stumber
Space Math
Clock (2)
Meteor Multiplication (6)
Super Math/Darts/Don't Fall (7)
Math Series--Dr. Dunlap
Beat the Clock (8)
MECC--Quadrilaterals (4)
A Tick Tock Tale (2 sets)

2 HBJ Microcomputer Software (Math Today)
Levels 3-4 green--orange

2 HBJ Microcomputer Software (Math Today)
Levels 5-6 purple--brown

Fact Track--1 disk

SRA Writing Skills--6 disks

Arithmetic Games--SRA Computer

SRA Software--Weather--1 disk

2 SRA Math Strategem--Problem Estimation--1 disk

Queue--Educational software

SRA Mind Power I Reading Series

Scholastic--Social Studies Lessons (grades 3-8)--1 disk

Hartley Calendar Skills--1 disk

Clock Hartley--1 disk

Number Stumper (math)

Crossword Magic (vocabulary)--1 disk

Math Blaster--1 disk

Space Math (game)--4 disks

1,2 Master Type (typing instructions game)

Bank Street Writer Word Processor--2 disks

Success with Math (addition, subtraction)--grade levels 1-4

Design Ware Math Maze--1 disk

Elephant Ears (prepositions through pictures)--1 disk

Idea Cat CAT with Speech (level 1)--3 disks (1A, 1B, 1C)

A Tick Tock Tale--4 disks

CEEDE Picture Dictionary, Things Around Us--2 disks

CEEDE Picture Dictionary, Action Words--2 disks

Scholastic--Story Tree--2 disks

Flash Speed Helicopter Language Arts--2 disks

2 Speed Reader II (#1, #3)--2 disks

2 Word Attack (#1, #2)--2 disks

Kid Writer (writing skills)

Peachtree (spelling and reading primer)--1 disk

Story Tree--hardbook

Bank Street Writer--hardbook

2 Holiday Computer Activities Workbook (grades 3-8)

Sticky Bear Math--1 disk

Sticky Bear Typing--1 disk

Computer Programming 1, 2, 3 (4)

Transitional Writing with Bank Street (2 disks per copy)

English (5 copies)

Spanish (10 copies)

Invitation to Math: 6--Teacher's Ed.

The Elementary Apple

USBONE Series

- Introduction to Computer Programming Basic for Beginners
- Usbone Guide to Better Basic
- Practice your Basic
- Scholastic Computing
- Inside the Chip (how it works and what it can do)
- Machine Code for Beginners
- Create your own Adventure Programs
- Understanding Computer Graphics
- Usbone Guide to Computer Jargon
- Practical Things to do with a Computer
- Computer Battle Games
- Computer Space Games
- Usbone Guide to Computer and Video Games
- Usbone Guide to Understanding the Micro
- Basic BASIC--English Dictionary
- Challenging Computer Games for TRS 80/Apple/PET

Microzine Premier Issue--2 disks

Microzine Vol. 1, No. 3

Wizard of Words Computer Game--4 disks

SVE Microcomputer Software--2 disks

Microzine for Skills Series--2 disks

Microzine for Skills Series--2 disks

Peter Rabbit Reading (ages 3-6)--1 disk

The Brain Game--1 disk

Report Card--2 disks

AEN Grading System--1 disk

2	Spanish Basic Vocabulary Builder on Computer--2 disks
2	Apple disk--Introduction--5 disks
9	Apple IIC--Owner's Manual
11	Monitor IIC--User's Manuals
2	Apple Color Composite Monitor--Owner's Guide
4	Setting up Your Apple IIC
3	MacIntosh Manual and MacWriter and MacPaint
	The Apple IIC Scribe--User's Manual
	Image Writer II--Owner's Manual
	Apple IIC--An Interactive Owner's Guide
3	The Apple Soft Tutorial
	Apple IIC--System Utilities--Setting up your Apple IIC
	Apple II--the DOS Manual
	Basic Programming Reference Manual
	Math Today Textbook and Teacher's Resource Book and Teacher's Edition
3	MacMillan English
	MacMillan Math
	Mathematica Hoy--Nivel 4 (Teacher's Ed.)
	Making Choices--Teacher's Ed.
	Scott, Foresman "Beginning Dictionary"
	Using the Computer in the Classroom--hardbook
	MacMillan Computer Literacy--Teacher's Resource
	MacMillan Music
	MacMillan Computer Literacy
	MacMillan Computer Literacy--Teacher's Ed.
	Making Choices Textbook

Building Dreams--Teacher's Ed.

BINET International--8 disks

BINET International--2 disks (math)----4 disks (science)

3M Micro diskettes (10)

Nashua diskettes (1 box of 14; 1 box of 12)

Athana Mini-diskettes--math series (10)

Precision disks (19)

Athana Mini-diskettes (9)

Nashua diskettes ¼85-86 profile½ (6)

Nashua--Sar Eli Backup 84-85 (6)

Scholastic Skills Book

Basic Computing

A--30 plus 26 not used

B--30 plus 26 not used

C--36 plus 25 not used

D--20

F--1

Mindscope Educational Software (reading) Levels 1-2 (6 disks)

Sticky Bear Reading Comprehension (1 disk)

Meteor Multiplication (10 disks)

Calendar Skills (5 disks)

APPENDIX H

APPENDIX H

INVENTORY-HIGH SCHOOL LEVEL

File: SOFTWARE INVENT Page 1

Report: SOFTWARE

TITLE OF PROGRAM

A COMPUTER IS: (Title VII)

A.E.N. GRADING SYSTEM (Title VII)

ADDING DECIMALS

ADVENTURE MASTER

ALGEBRA 3 (Title VII)

ALGEBRA VOL 2

ALGEBRA VOL 1

ALGEBRA WORD PROBLEMS I: MOTION

ALGEBRA WORD PROBLEMS II: AREA PERIMETER, & LEVER

ALGEBRA WORD PROBLEMS III: MIXTURE, COIN, & INVESTMENT

ALGEBRA WORK PROBLEM IV: PERCENTS, MIXTURE, & AGE

AMERICAN GOVERNMENT

APPLE LOGO II

APPLEWORKS

BANK STREET FILER (Title VII)

BANKSTREET WRITER

BIOLOGY SERIES

BUDGETING SIMULATION (Title VII)

CAPITALIZATION PLUS

COMPUCAT BIOLOGY

CONCENTRATION

CRITERION MICRO SOFT (Title I Regular)

CRYPTO CUBE

DATA BASE TUTOR (Title VII)

DAZZLE DRAW

DECIMAL MADE SIMPLE (Title VII)

DECISION MAKING & PROBLEM SOLVING

DIVIDING DECIMALS

ENGLISH ACHIEVEMENT I

ENGLISH ACHIEVEMENT II

ENGLISH ACHIEVEMENT III

ENGLISH ACHIEVEMENT IV

ENGLISH ACHIEVEMENT V

FUN BUNCH

GEOMETRY: FORMULAS, SHAPES AND SKILLS (Title VII)

GOLF CLASSIC

HIGH SCHOOL MATH COMPETENCY SERIES

HISTORY & GOVT-AMERICAN HISTORY

HISTORY & GOVT-ASIAN/AFRICAN HISTORY

HISTORY & GOVT-FOREIGN GOVT'S & UNITED NATIONS

HISTORY & GOVT-OLD CIVILIZATION

HISTORY & GOVT-U.S. GOVT.

[illegible] AND GEOGRAPHY-2

INTERPRETING GRAPHS AND TABLES

KOALA PAD +

LANGUAGE ARTS: WORD PAIRS

LANGUAGE ARTS: SUBJECT-VERB AGREEMENT

MATCH MAKER-U.S. GEOGRAPHY FACTS (Title VII)

METRIC SKILLS I & II (Title VII)

MICROZINE #11

MICROZINE #3

MICROZINE PREMIER ISSUE

THE CONSTITUTIONAL AMENDMENTS: WHAT THEY MEAN TO YOU

THE HISTORY OF THE U.S.-EXPLORERS OF NORTH AMERICA

THE HISTORY OF THE U.S.-THE THIRTEEN COLONIES

THE INCREDIBLE LABORATORY

THE MONEY MANAGER (Title VII)

THE MUSIC CONSTRUCTION SET

THE NEWSROOM (2)

THE PRINT SHOP DISK 1

THE PRINT SHOP DISK 2

THE PRINT SHOP DISK 3

THE SCIENCE OF LEARNING FRACTIONS (Title VII)

THE WORM

TIC TAC SHOW

TUTOR LESSON-CONSUMER EDUCATION INVESTMENTS (Title VII)

TUTOR LESSON-CONSUMER EDUCATION, CHECKING ACCOUNTS (Title VII)

UNIT 13-CONSUMER MATH (Title VII)

UNIT 11-MEASUREMENTS (Title VII)

WIZARD OF WORDS

WIZARD OF WORDS (Title I Regular)

WORD MATCH

WORD SCRAMBLE

WORD SEARCH

WORLD OF INSECTS

Report: SOFTWARE

TITLE OF PROGRAM

MULTIPLE CHOICE

MULTIPLICATION DECIMALS

NUMBER FACT SHEETS (Title VII)

OPERATION FROG

ORDER OF OPERATIONS (MATH)

PARTS OF A MICROSCOPE

PRACTICAL II (Title VII)

PREPARATION FOR ACT

PREPARATION FOR SAT

PRINT SHOP

PROBABILITY (Title VII)

QUICK FILE

ROUNDING (Title VII)

SENSES: HUMAN PHYSIOLOGY

SPANISH ACHIEVEMENT I

SPANISH ACHIEVEMENT II

SPANISH ACHIEVEMENT III

SPEED READER II

STUDY SKILLED

SUBTRACTING DECIMALS

SUPER PILOT

TEACHER SCORE BOOK

COMPUTER HARDWARE INVENTORY

DATE: 5-18-87

STATION	KEYBOARD	MONITOR	EX. DSK. DR.	POWER PAC.	PRINTER	STAND
1	048	049	068	?	I.W.II 063648	048
DOP	10/16/84	10/16/84	04/18/85	?	2/10/87	10/16/84
2	010	047	069	?	I.W.II 0632660	047
DOP	02/04/86	10/16/87	01/17/85	?	02/23/87	10/16/84
3	056	057	NONE	?	SCRIBE 070	057
DOP	10/16/84	10/16/84	NONE	?	10/16/84	10/16/84
4	060	061	NONE	?	NONE	059
DOP	10/16/84	10/16/84	NONE	?	NONE	10/16/84
5	059	057480	NONE	?	NONE	063
DOP	10/16/84	10/16/84	NONE	?	NONE	10/16/84
6	052	053	NONE	?	NONE	051
DOP	10/16/84	10/16/84	NONE	?	NONE	10/16/84
7	062	059	NONE	?	NONE	061
DOP	10/16/84	10/16/84	NONE	?	NONE	10/16/84
8	054	055	NONE	?	NONE	053
DOP	10/16/84	10/16/84	NONE	?	NONE	10/16/84
9	064	066	NONE	?	NONE	055
DOP	10/16/84	04/09/85	NONE	?	NONE	10/16/84
10	050	051	NONE	?	NONE	057
DOP	10/16/84	10/16/84	NONE	?	NONE	10/16/84
11	045	044	NONE	?	NONE	044

DOP	10/16/84	10/16/84	NONE	?	NONE	10/16/84
12	216	218	217	INT.	NONE	NONE
DOP	?	?	?	NONE	NONE	NONE
13	822 IIe	821	DDD	INT.	NONE	NONE
DOP	?	?	?	NONE	NONE	NONE
14	041 MAC	042 MAC	INT.	INT.	NONE	NONE
DOP	10/16/84	10/16/84	NONE	NONE	NONE	NONE
14	1 EXTRA COLOR MONITOR # 007287					

FURNITURE INVENTORY COMPUTER LAB CLASSROOM

05/28/87

13	FOLDING TABLES
01	TEACHERS DESK
01	RED PLASTIC VOLLER TYPE TEACHERS CHAIR
01	GREY METAL 02 DRAWER FILING CABINET
01	TAN METAL 04 DRAWER FILING CABINET
01	TAN METAL 02 DRAWER STORAGE CABINET
01	TAN METAL 01 DOOR STORAGE CABINET
01	BLUE WOOD POTIUM
01	BLUE COMPRESSED WOOD BOOK SHELF
01	GREY WOOD/PLASTIC DISKETTE STORAGE CABINET
	FOLDING METAL CHAIRS
01	WALL CLOCK ELECTRICAL
01	WOOD DISKETTE STORAGE CABINET
01	PENCIL SHARPENER
01	PLASTIC FAN

COMPUTER BOOK INVENTORY

01	PRACTICAL BASIC PROGRAMS LOU POOLE	01 COMPUTER
	LITERACY A HANDS ON APPROACH - (TEACHERS GUIDE)	
01	APPLE INTERFACING - TITUS, LARSEN, TITUS	
01	APPLE II USER GUIDE	
01	SOME COMMON BASIC PROGRAMS	
01	COMPUTER	
	CONFIDENCE A WOMAN'S GUIDE - HELLERS,BOWER	
01	BASIC FOR THE APPLE - GOLDSTEIN & GOLDSTEIN	
01	APPLE II BASIC - GOODFELLOW	
01	POLISHING YOUR APPLE -	
	HONING	1 101
	APPLE COMPUTER PROGRAM TIPS & TRICKS - WHITE	

COMPUTER BOOKS

1 PRACTICAL BASIC PROGRAMS - LOU PODE

1 COMPUTER LITERACY A HANDS ON APPROACH (TEACHERS GUIDE) 1 APPLE
INTERFACING TITUS, LAUSEN, TITUS

1 APPLE II USER'S GUIDE

1 SOME COMMON BASIC PROGRAMS

1 COMPUTER CONFIDENCE - A WOMAN'S GUIDE (HELLER BOWER FOR THE APPLE
GOLDSTEIN & GOLDSTEIN 1 BASIC

1 APPLE II BASIC GOODFELLOW

1 POLISHING YOUR APPLE HONING

1 101 APPLE COMPUTER PROGRAM

TIPS & TRICKS WHITE 1 33 NEW

APPLE COMPUTER PROGRAMING FOR HOME, SCHOOL, & OFFICE WHITE

1 A DICTIONARY OF COMPUTER WORDS-BLY

1 KAREL THE ROBOT-PATTIS

1 APPLE BASIC-HASKELL

1 HOW TO WRITE AN APPLE PROGRAM-FAULK

1 COMPUTER LITERACY A HAND ON APPROACH-VEHUMANN/PECKNAM

1 MOSTLY BASIC APPLICATIONS FOR YOUR APPLE

11 BOOK 1 BERENBON 1 THE CREATIVE APPLE

PELZARSKI & TATE

COMPUTERS FOR KIDS-LARSEN

1 MICRO-COMPUTER GRAPHICS MEYERS

1 ENHANCING YOUR APPLE II LANDCASTER

1 MOSTLY BASIC

APPLICATIONS FOR YOUR APPLE II BOOK #2 BERENBON

1 THE APPLE PERSONAL COMPUTER FOR BEGINNERS D. MORGAN

1 PROGRAMMING YOUR APPLE II COMPUTER BRYAN

COMPUTER BOOKS

1	PRACTICAL BASIC PROGRAMS - LOU PODE
1	COMPUTER LITERACY A HAND-ON APPROACH - TEACHER'S GUIDE
1	APPLE II USER'S GUIDE
1	SOME COMMON BASIC PROGRAMS
1	COMPUTER CONFIDENCE A WOMAN'S GUIDE - HELLER BOWER
1	BASIC FOR THE APPLE - GOLDSTEIN & GOLDSTEIN
1	APPLE II BASIC - GOODFELLOW
1	POLISHING YOUR APPLE - HONING
1	101 APPLE COMPUTER PROGRAM TIPS AND TRICKS - WHITE
1	33 NEW APPLE COMPUTER PROGRAMS FOR HOME, SCHOOL AND OFFICE - WHITE
1	A DICTIONARY OF COMPUTER WORDS - BLY
1	KAREL THE ROBOT - PATTIS
1	APPLE BASIC - HASKELL
1	HOW TO WRITE AN APPLE PROGRAM - FAULK
1	COMPUTER LITERACY - A HANDS-ON APPROACH - LEUMAN PECKNAM
1	MOSTLY BASIC APPLICATIONS FOR YOUR APPLE II BOOK I - BERENBON
1	THE CREATIVE APPLE - PEKZARSKI & TATE
1	COMPUTER FOR KIDS - LARSEN
1	MICROCOMPUTER GRAPHICS - MYERS
1	ENHANCING YOUR APPLE II - LANCASTER
1	MOSTLY BASIC APPLICATIONS FOR YOUR APPLE II - BOOK 2 - BERENBON
1	THE APPLE PERSONAL COMPUTER FOR BEGINNERS - DUNN MORGAN

SOFTWARE BOOKS

1	ANIMAL FARM	081	MEDIA BASIC STUDY GUIDE
1	THE GREAT BRAIN	087	
1	THE ADVENTURES OF TOM SAWYER	080	
1	THE ADVENTURES OF HUCKLEBERRY FINN	079	
1	THE BLACK STALLION	082	
1	CALL OF THE WILD	083	
1	FAHRENHEIT 451	085	
1	THE RED BADGE OF COURAGE	095	
1	WHERE THE RED FERN GROWS	098	
1	DIARY OF ANNE FRANK	084	
1	A RAISIN IN THE SUN	094	
1	JULIUS CAESAR	090	
1	THE MIRACLE WORKER	092	
1	GREAT EXPECTATIONS	088	
1	THE GOOD EARTH	086	
1	TO KILL A MOCKINGBIRD	097	
1	LORD OF THE FLIES	091	
1	THE PEARL	093	

APPENDIX I

APPENDIX I

GAP-REDUCTION COMPUTATION

Using norms as your comparison group. If you use norms as your nonproject comparison group you must begin with the following four steps:

Step 1. Conduct your testing on dates close to the test's empirical norming dates (see Glossary).

Step 2. Convert each project student's raw pretest and posttest score to a scale score, using the correct conversion table for the form and level of the test you used.

Step 3. Compute project students' mean pretest and posttest scale scores at each grade level.

Step 4. (In the test's technical manual) Find the norm group's mean pre- and posttest *scale scores* and the *scale score* standard deviations for the grade levels that correspond to project students' grade levels at pretest and posttest.

Regardless of whether you used a live comparison group or norms, you should continue as follows:

Step 5. Subtract the project group's mean pretest score from the comparison group's mean pretest score. Divide the difference by the comparison group's pretest standard deviation and label the result the pretest gap.

Step 6. Subtract the project group's mean posttest score from the comparison group's mean posttest score. Divide the difference by the comparison group's posttest standard deviation and label the result the posttest gap.

Step 7. Subtract the posttest gap (from Step 6) from the pretest gap (from Step 5) and label the difference the gap reduction. (The gap reduction may be negative. Be sure to keep track of the sign!)

Step 8. Subtract the comparison group's mean pretest score from its mean posttest score and label the difference the comparison group's unstandardized growth estimate.

Step 9. Using the *comparison group's* pre- and posttest standard deviations, calculate the following value:

$$\sqrt{\frac{(S.D._{pre})^2 + (S.D._{post})^2}{2}}$$

Label this value the comparison group's pooled standard deviation.

Step 10. Divide the comparison group's unstandardized growth estimate (from Step 8) by the comparison group's pooled standard deviation (from Step 9). Label this value the comparison group's standardized growth estimate.

Step 11. Add the gap reduction (from Step 7) to the comparison group's standardized growth estimate (from Step 10). Label this sum the project group's standardized growth estimate.

Step 12. Divide the project group's standardized growth estimate (from Step 11) by the comparison group's standardized growth estimate (from Step 10). Multiply the result by 100 to convert it to a percent and label it the Relative Growth Index (RGI).

BEST COPY AVAILABLE

APPENDIX J

APPENDIX J

GAP-REDUCTION MODEL (MODIFIED)

STEP 1--PRETEST GAP

a. Pretest Comparison Group mean minus the pretest Project Group mean.

STEP 2--POSTTEST GAP

a. Posttest Comparison Group mean minus the posttest Project Group mean.

STEP 3--GAP REDUCTION

a. Pretest Gap minus the Posttest Gap.

STEP 4--CONVERSION NUMBER

a. 100 divided by the Pretest Gap.

STEP 5--CONVERSION OF PRETEST GAP

a. Pretest Gap multiplied by the Conversion Number equals 100%.

STEP 6--CONVERSION OF POSTTEST GAP

a. Posttest Gap multiplied by the Conversion Number equals %.

STEP 7--CONVERSION OF GAP REDUCTION

a. Gap Reduction multiplied by the Conversion Number equals %.

EXAMPLE

1. Pretest Gap--441 - 360.6 = 80.9 (round-off to 81).
2. Posttest Gap--456 - 398 = 58
3. Gap Reduction--81 - 58 = 23
4. Conversion Number--100 ÷ 81 = 1.23
5. Conversion of Pretest Gap--81 x 1.23 = 100%
6. Conversion of Posttest Gap--58 x 1.23 = 71.34%

7. Conversion of Gap Reduction--23 x 1.23 = 28.66% (round-off to 28.7%)

* Due to "rounding-off to one or two decimal places, some computations may appear to contain slight discrepancies.

GAP REDUCTION MODEL (MODIFIED)

STEP 1: Pretest Gap

Pretest Comparison u-Pretest Project u

STEP 2: Posttest Gap

Posttest Comp. u-Posttest Project u

STEP 3: Gap Reduction

Pretest Gap - Posttest Gap

STEP 4: Conversion no.

100 ÷ Pretest Gap

STEP 5: Conversion of Pretest Gap

Pretest Gap x conversion no. = 100%

STEP 6: Conversion of Posttest Gap

Posttest Gap x conversion no. = %

STEP 7: Conversion of Gap Reduction

Gap reduction x conversion no. = %

---

1. Pretest Gap	2. Posttest Gap	3. Gap reduction
441 - 360.6 = 80.9	456 - 398 = 58	81 - 58 = 23
81		

---

4. Conversion no.

100 ÷ 81=1.23

5. Conv. Pretest	6. Conv. Posttest	7. Conv. Gap Reduction
81 x 1.23 = 100%	58 x 1.23 = 71.34%	23 x 1.23 = 28.66%
		28.7%

APPENDIX K

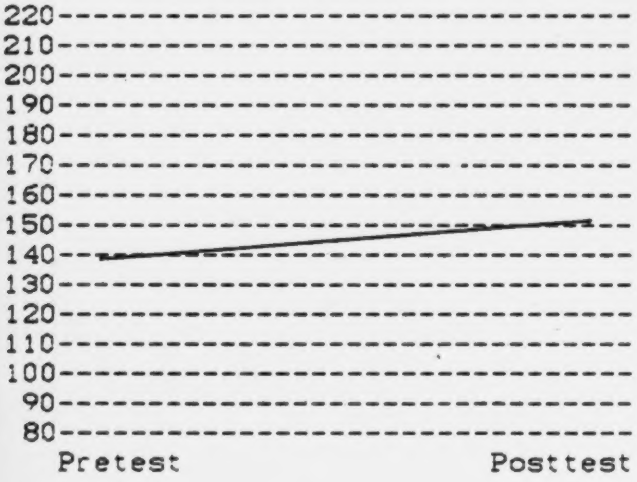
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 1 - Composite

Project Group		Comparison Group	
Pretest (10/87) mean = 139	Posttest (4/88) mean = 151	Pretest (1.1) mean =	Posttest (1.7) mean =
140	151		
110	152		
169	176		
136	125		

1. Pretest Gap	2. Posttest Gap	3. Gap Reduction

4. Conversion no.:

5. Converted Pretest	6. Converted Posttest	7. Converted Gap Reduction



Pretest Gap:
Posttest Gap:
Gap Reduction:
% Gap Reduction:

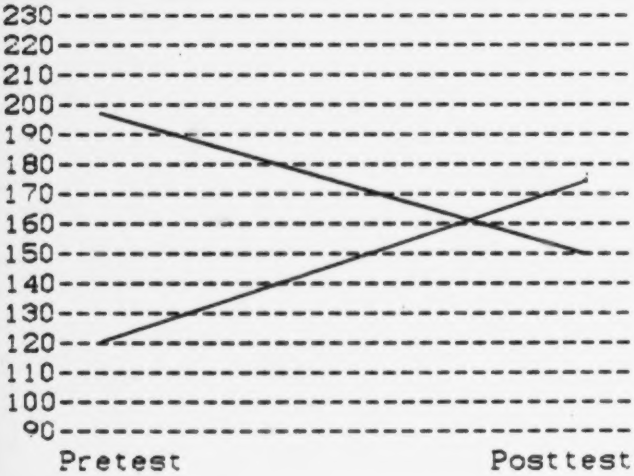
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 1 - Reading

Project Group		Comparison Group	
Pretest (10/87) mean = 198	Posttest (4/88) mean = 150	Pretest (1.1) mean = 120	Posttest (1.7) mean = 174
180	140		
180	170		
233	157		
201	131		

1. Pretest Gap	2. Posttest Gap	3. Gap Reduction
120 - 198 = -78	174 - 150 = 24	-78 - 24 = -102

4. Conversion no.: 100 / 78 = 1.3

5. Converted Pretest	6. Converted Posttest	7. Converted Gap Reduction
-78 x 1.3 = -100	24 x 1.3 = 31	-102 x 1.3 = -133



Pretest Gap:	-78
Posttest Gap:	24
Gap Reduction:	-102
% Gap Reduction:	-133%

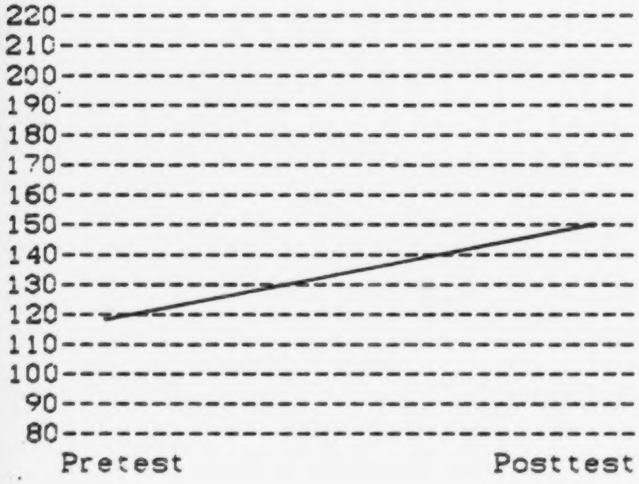
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 1 - Language

Project Group		Comparison Group	
Pretest (10/87) mean = 119	Posttest (4/88) mean = 150	Pretest (1.1) mean =	Posttest (1.7) mean =
135	135		
152	152		
89	144		
104	177		
115	144		

1. Pretest Gap	2. Posttest Gap	3. Gap Reduction

4. Conversion no.:

5. Converted Pretest	6. Converted Posttest	7. Converted Gap Reduction



Pretest Gap:
Posttest Gap:
Gap Reduction:
% Gap Reduction:

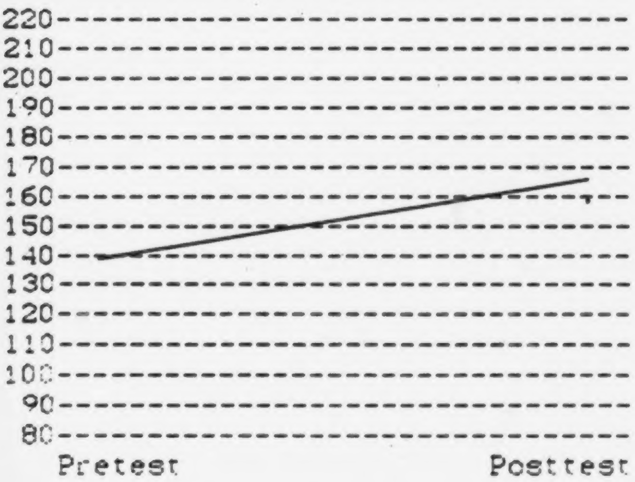
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 1 - Math

Project Group		Comparison Group	
Pretest (10/87) mean = 139	Posttest (4/88) mean = 167	Pretest (1.1) mean =	Posttest (1.7) mean = 159
127	138		
138	179		
125	168		
171	204		
136	148		

1. Pretest Gap	2. Posttest Gap 159 - 167 = -8	3. Gap Reduction

4. Conversion no.:

5. Converted Pretest	6. Converted Posttest	7. Converted Gap Reduction



Pretest Gap:
Posttest Gap: -8
Gap Reduction:
% Gap Reduction:

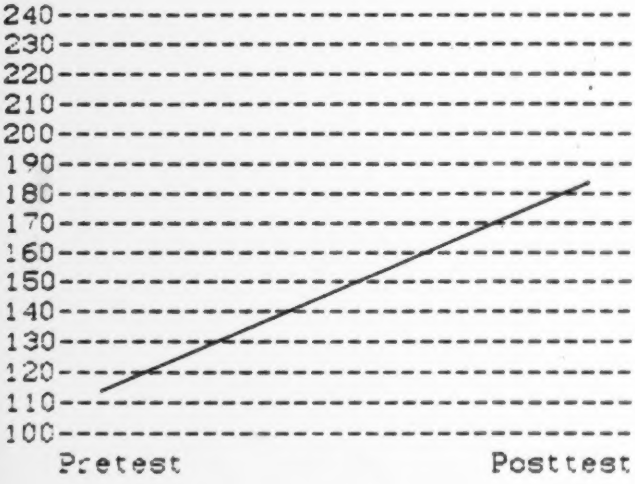
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 2 - Composite

Project Group		Comparison Group	
Pretest (10/87)	Posttest (4/88)	Pretest (2.1)	Posttest (2.7)
mean = 113	mean = 183	mean =	mean = 216
133	206		
111	156		
96	168		
103	190		
123	171		
110	208		

1. Pretest Gap	2. Posttest Gap 216 - 183 = 33	3. Gap Reduction

4. Conversion no.:

5. Converted Pretest	6. Converted Posttest	7. Converted Gap Reduction



Pretest Gap:
Posttest Gap: 33
Gap Reduction:
% Gap Reduction:

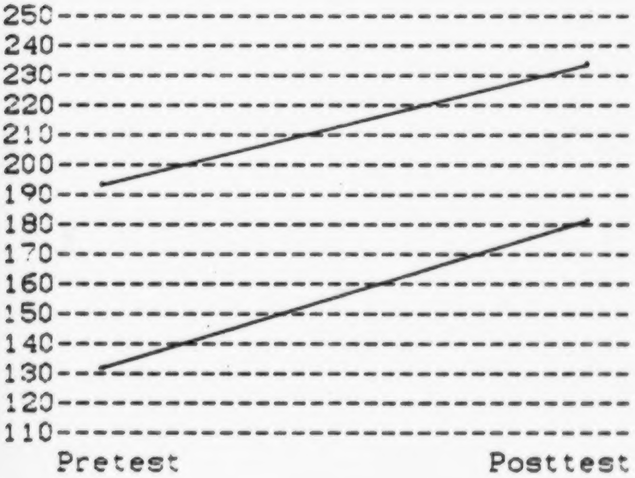
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 2 - Reading

Project Group		Comparison Group	
Pretest (10/87) mean = 131	Posttest (4/88) mean = 181	Pretest (2.1) mean = 193	Posttest (2.7) mean = 234
138	145		
145	187		
83	165		
117	195		
149	192		
138	162		
145	221		

1. Pretest Gap 193 - 131 = 62	2. Posttest Gap 234 - 181 = 53	3. Gap Reduction 62 - 53 = 9

4. Conversion no.: 100 / 62 = 1.6

5. Converted Pretest 62 x 1.6 = 100	6. Converted Posttest 53 x 1.6 = 85	7. Converted Gap Reduction 9 x 1.6 = 14



Pretest Gap:	62
Posttest Gap:	53
Gap Reduction:	9
% Gap Reduction:	14%

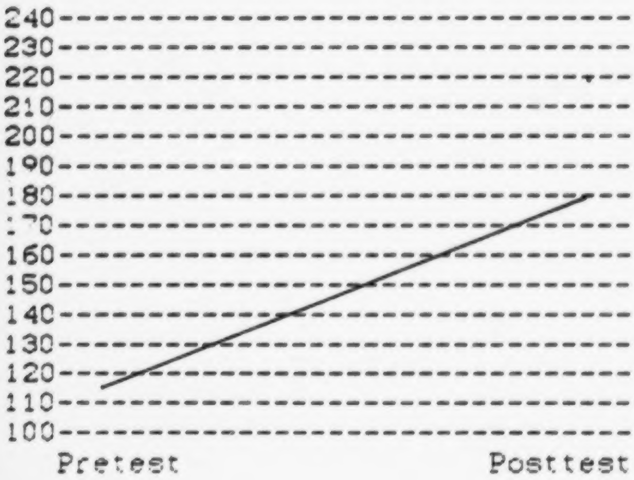
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 2 - Language

Project Group		Comparison Group	
Pretest (10/87) mean = 116	Posttest (4/88) mean = 180	Pretest (2.1) mean =	Posttest (2.7) mean = 219
114	215		
114	183		
138	145		
102	154		
109	145		
142	183		
96	235		

1. Pretest Gap	2. Posttest Gap 219 - 180 = 39	3. Gap Reduction

4. Conversion no.:

5. Converted Pretest	6. Converted Posttest	7. Converted Gap Reduction



Pretest Gap:
Posttest Gap: 39
Gap Reduction:
% Gap Reduction:

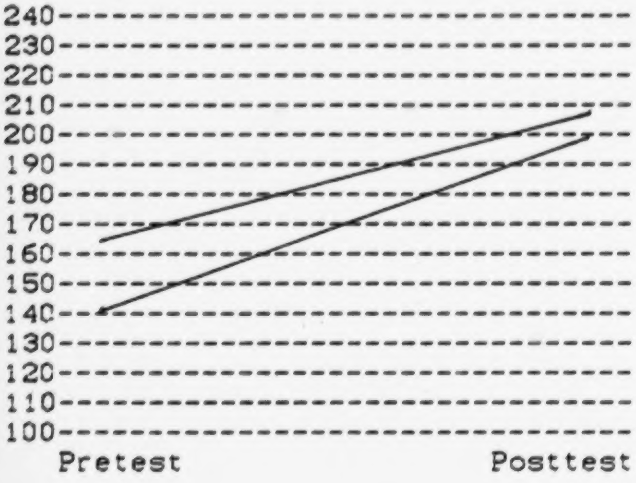
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 2 - Math

Project Group		Comparison Group	
Pretest (10/87) mean = 141	Posttest (4/88) mean = 199	Pretest (2.1) mean = 165	Posttest (2.7) mean = 208
120	157		
168	270		
153	178		
134	175		
127	245		
144	182		
142	185		

1. Pretest Gap 165 - 141 = 24	2. Posttest Gap 208 - 199 = 9	3. Gap Reduction 24 - 9 = 15

4. Conversion no.: 100 / 24 = 4.2

5. Converted Pretest 24 x 4.2 = 100	6. Converted Posttest 9 x 4.2 = 38	7. Converted Gap Reduction 15 x 4.2 = 63



Pretest Gap:	24
Posttest Gap:	9
Gap Reduction:	15
% Gap Reduction:	63%

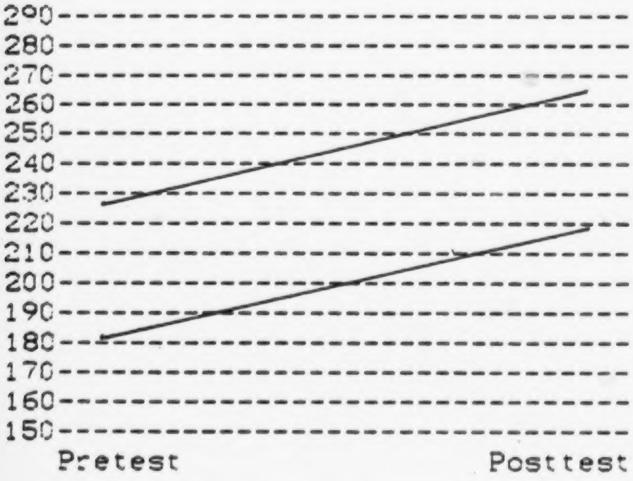
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 3 - Composite

Project Group		Comparison Group	
Pretest (10/87)	Posttest (4/88)	Pretest (3.1)	Posttest (3.7)
mean = 181	mean = 219	mean = 227	mean = 265
187	206		
183	204		
184	248		
169	217		
210	243		
176	207		
173	226		
167	201		

1. Pretest Gap 227 - 181 = 46	2. Posttest Gap 265 - 219 = 46	3. Gap Reduction 46 - 46 = 0

4. Conversion no.: 100 / 46 = 2.2

5. Converted Pretest 46 x 2.2 = 100	6. Converted Posttest 46 x 2.2 = 100	7. Converted Gap Reduction 0 x 2.2 = 0



Pretest Gap:	46
Posttest Gap:	46
Gap Reduction:	0
% Gap Reduction:	0%

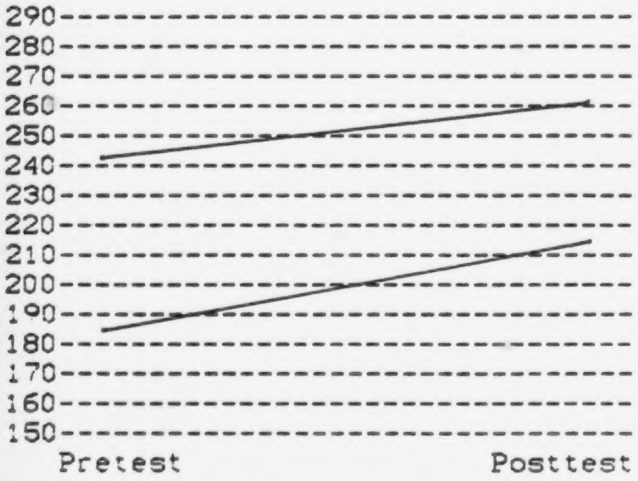
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 3 - Reading

Project Group		Comparison Group	
Pretest (10/87) mean = 185	Posttest (4/88) mean = 215	Pretest (3.1) mean = 242	Posttest (3.7) mean = 261
177	195		
190	218		
193	237		
180	227		
222	242		
177	197		
161	221		
177	184		

1. Pretest Gap 242 - 185 = 57	2. Posttest Gap 261 - 215 = 46	3. Gap Reduction 57 - 46 = 11

4. Conversion no.: 100 / 57 = 1.8

5. Converted Pretest 57 x 1.8 = 100	6. Converted Posttest 46 x 1.8 = 83	7. Converted Gap Reduction 11 x 1.8 = 20



Pretest Gap:	57
Posttest Gap:	46
Gap Reduction:	11
% Gap Reduction:	20%

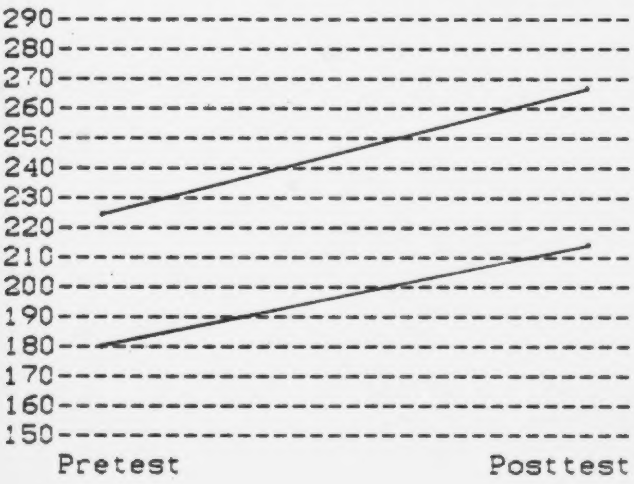
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 3 - Language

Project Group		Comparison Group	
Pretest (10/87) mean = 180	Posttest (4/88) mean = 215	Pretest (3.1) mean = 225	Posttest (3.7) mean = 267
189	191		
162	189		
191	230		
168	226		
215	252		
180	213		
170	211		
162	205		

1. Pretest Gap	2. Posttest Gap	3. Gap Reduction
225 - 180 = 45	267 - 215 = 52	45 - 52 = -7

4. Conversion no.: 100 / 45 = 2.2

5. Converted Pretest	6. Converted Posttest	7. Converted Gap Reduction
45 x 2.2 = 100	52 x 2.2 = 114	-7 x 2.2 = -15



Pretest Gap:	45
Posttest Gap:	52
Gap Reduction:	-7
% Gap Reduction:	-15%

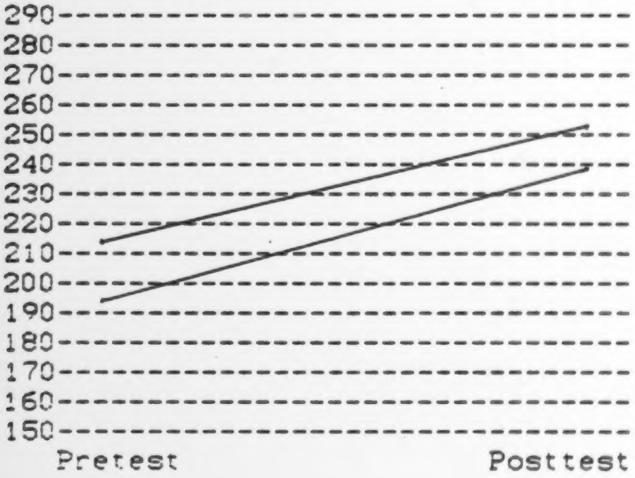
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 3 - Math

Project Group		Comparison Group	
Pretest (10/87) mean = 194	Posttest (4/88) mean = 239	Pretest (3.1) mean = 214	Posttest (3.7) mean = 252
206	248		
208	216		
184	284		
179	210		
206	242		
186	225		
200	261		
181	228		

1. Pretest Gap 214 - 194 = 20	2. Posttest Gap 252 - 239 = 13	3. Gap Reduction 20 - 13 = 7

4. Conversion no.: 100 / 20 = 5.0

5. Converted Pretest 20 x 5.0 = 100	6. Converted Posttest 13 x 5.0 = 65	7. Converted Gap Reduction 7 x 5.0 = 35



Pretest Gap:	20
Posttest Gap:	13
Gap Reduction:	7
% Gap Reduction:	35%

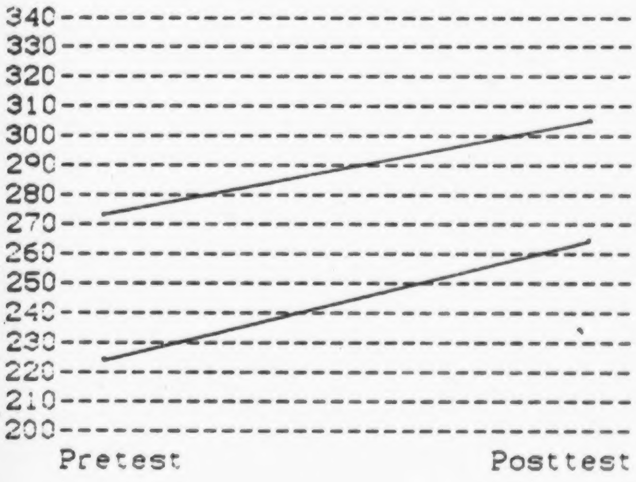
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 4 - Composite

Project Group		Comparison Group	
Pretest (10/87) mean = 225	Posttest (4/88) mean = 265	Pretest (4.1) mean = 273	Posttest (4.7) mean = 306
247	311		
219	240		
229	329		
230	291		
224	293		
220	246		
218	240		
217	216		
218	217		

1. Pretest Gap	2. Posttest Gap	3. Gap Reduction
273 - 225 = 48	306 - 265 = 41	48 - 41 = 7

4. Conversion no.: 100 / 48 = 2.1

5. Converted Pretest	6. Converted Posttest	7. Converted Gap Reduction
48 x 2.1 = 100	41 x 2.1 = 86	7 x 2.1 = 15



Pretest Gap:	48
Posttest Gap:	41
Gap Reduction:	7
% Gap Reduction:	15%

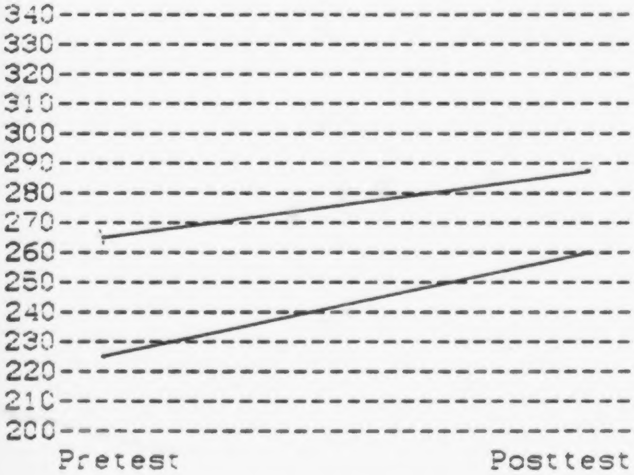
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 4 - Reading

Project Group		Comparison Group	
Pretest (10/87) mean = 226	Posttest (4/88) mean = 260	Pretest (4.1) mean = 266	Posttest (4.7) mean = 288
235	312		
212	251		
259	295		
217	277		
217	266		
233	268		
215	246		
217	233		
220	217		
235	233		

1. Pretest Gap	2. Posttest Gap	3. Gap Reduction
266 - 226 = 40	288 - 260 = 28	40 - 28 = 12

4. Conversion no.: 100 / 40 = 2.5

5. Converted Pretest	6. Converted Posttest	7. Converted Gap Reduction
40 x 2.5 = 100	28 x 2.5 = 70	12 x 2.5 = 30



Pretest Gap: 40
Posttest Gap: 28
Gap Reduction: 12
% Gap Reduction: 30%

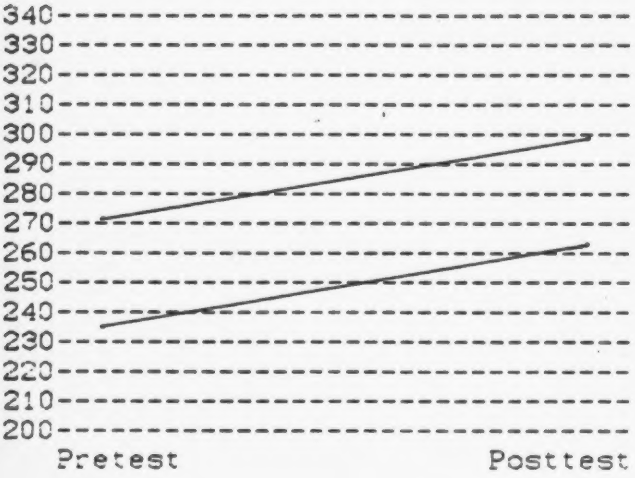
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 4 - Language

Project Group		Comparison Group	
Pretest (10/87) mean = 236	Posttest (4/88) mean = 263	Pretest (4.1) mean = 271	Posttest (4.7) mean = 299
260	288		
241	234		
236	263		
248	336		
234	276		
238	339		
231	246		
223	228		
236	226		
211	194		

1. Pretest Gap 271 - 236 = 35	2. Posttest Gap 299 - 263 = 36	3. Gap Reduction 35 - 36 = -1

4. Conversion no.: 100 / 35 = 2.9

5. Converted Pretest 35 x 2.9 = 100	6. Converted Posttest 36 x 2.9 = 104	7. Converted Gap Reduction -1 x 2.9 = -3



Pretest Gap:	35
Posttest Gap:	36
Gap Reduction:	-1
% Gap Reduction:	-3%

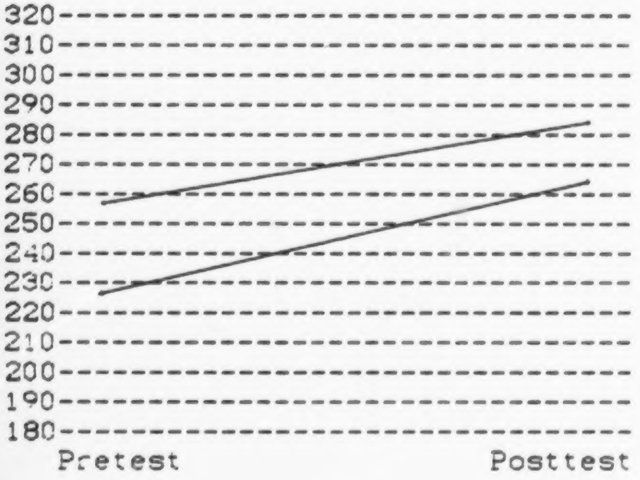
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 4 - Math

Project Group		Comparison Group	
Pretest (10/87) mean = 227	Posttest (4/88) mean = 264	Pretest (4.1) mean = 258	Posttest (4.7) mean = 284
252	288		
217	241		
237	319		
252	306		
212	256		
225	249		
225	266		
208	217		
217	237		

1. Pretest Gap	2. Posttest Gap	3. Gap Reduction
258 - 227 = 31	284 - 264 = 20	31 - 20 = 11

4. Conversion no.: 100 / 31 = 3.2

5. Converted Pretest	6. Converted Posttest	7. Converted Gap Reduction
31 x 3.2 = 100	20 x 3.2 = 64	11 x 3.2 = 35



Pretest Gap:	31
Posttest Gap:	20
Gap Reduction:	11
% Gap Reduction:	35%

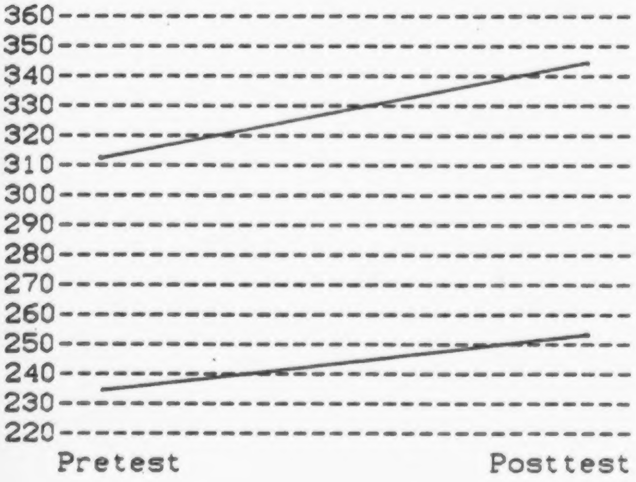
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 5 - Composite

Project Group		Comparison Group	
Pretest (10/87) mean = 235	Posttest (4/88) mean = 253	Pretest (5.1) mean = 313	Posttest (5.7) mean = 346
265	306		
255	327		
224	224		
217	204		
220	231		
229	228		

1. Pretest Gap 313 - 235 = 78	2. Posttest Gap 346 - 253 = 93	3. Gap Reduction 78 - 93 = -15

4. Conversion no.: 100 / 78 = 1.3

5. Converted Pretest 78 x 1.3 = 100	6. Converted Posttest 93 x 1.3 = 121	7. Converted Gap Reduction -15 x 1.3 = -20



Pretest Gap:	78
Posttest Gap:	93
Gap Reduction:	-15
% Gap Reduction:	-20%

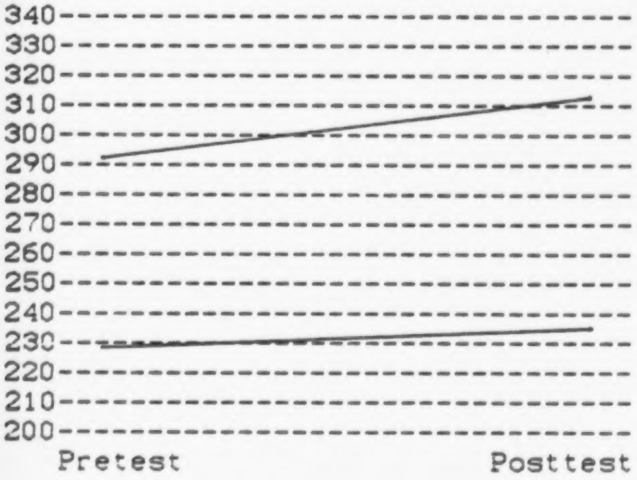
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 5 - Reading

Project Group		Comparison Group	
Pretest (10/87) mean = 229	Posttest (4/88) mean = 236	Pretest (5.1) mean = 292	Posttest (5.7) mean = 312
248	274		
246	283		
230	213		
217	202		
221	220		
210	224		

1. Pretest Gap 292 - 229 = 63	2. Posttest Gap 312 - 236 = 76	3. Gap Reduction 63 - 76 = -13

4. Conversion no.: 100 / 63 = 1.6

5. Converted Pretest 63 x 1.6 = 100	6. Converted Posttest 76 x 1.6 = 122	7. Converted Gap Reduction -13 x 1.6 = -21



Pretest Gap:	63
Posttest Gap:	76
Gap Reduction:	-13
% Gap Reduction:	-21%

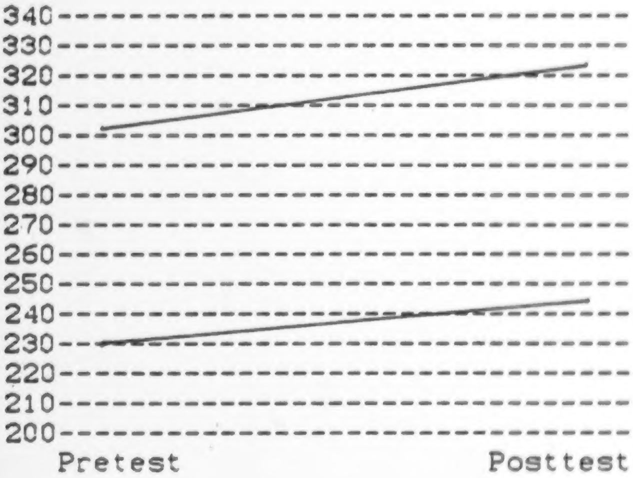
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 5 - Language

Project Group		Comparison Group	
Pretest (10/87) mean = 230	Posttest (4/88) mean = 245	Pretest (5.1) mean = 302	Posttest (5.7) mean = 324
265	284		
245	276		
208	223		
212	205		
215	258		
233	225		

1. Pretest Gap	2. Posttest Gap	3. Gap Reduction
302 - 230 = 72	324 - 245 = 79	72 - 79 = -7

4. Conversion no.: 100 / 72 = 1.4

5. Converted Pretest	6. Converted Posttest	7. Converted Gap Reduction
72 x 1.4 = 100	79 x 1.4 = 111	-7 x 1.4 = -10



Pretest Gap:	72
Posttest Gap:	79
Gap Reduction:	-7
% Gap Reduction:	-10%

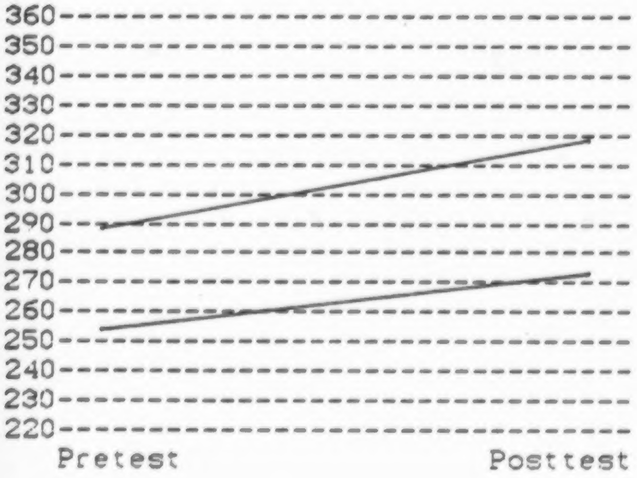
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 5 - Math

Project Group		Comparison Group	
Pretest (10/87) mean = 254	Posttest (4/88) mean = 272	Pretest (5.1) mean = 289	Posttest (5.7) mean = 319
278	322		
275	365		
246	251		
233	218		
233	231		
258	246		

1. Pretest Gap 289 - 254 = 35	2. Posttest Gap 319 - 272 = 47	3. Gap Reduction 35 - 47 = -12

4. Conversion no.: 100 / 35 = 2.9

5. Converted Pretest 35 x 2.9 = 100	6. Converted Posttest 47 x 2.9 = 136	7. Converted Gap Reduction -12 x 2.9 = -35



Pretest Gap:	35
Posttest Gap:	47
Gap Reduction:	-12
% Gap Reduction:	-35%

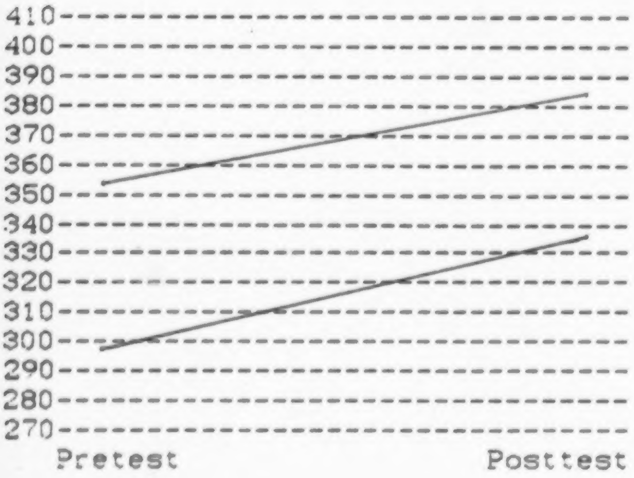
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 6 - Composite

Project Group		Comparison Group	
Pretest (10/87) mean = 298	Posttest (4/88) mean = 337	Pretest (6.1) mean = 354	Posttest (6.7) mean = 385
306	408		
309	325		
323	401		
309	343		
248	283		
262	300		
341	417		
329	392		
317	369		
271	290		
327	348		
254	262		
278	304		
295	281		

1. Pretest Gap 354 - 298 = 56	2. Posttest Gap 385 - 337 = 48	3. Gap Reduction 56 - 48 = 8

4. Conversion no.: 100 / 56 = 1.8

5. Converted Pretest 56 x 1.8 = 100	6. Converted Posttest 48 x 1.8 = 86	7. Converted Gap Reduction 8 x 1.8 = 14



Pretest Gap:	56
Posttest Gap:	48
Gap Reduction:	8
% Gap Reduction:	14%

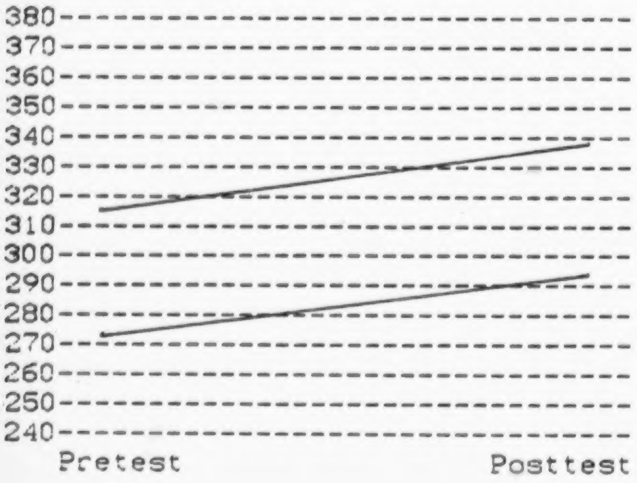
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 6 - Reading

Project Group		Comparison Group	
Pretest (10.87) mean = 273	Posttest (4/88) mean = 294	Pretest (6.1) mean = 317	Posttest (6.7) mean = 339
274	331		
271	288		
295	356		
263	266		
248	271		
251	268		
288	313		
301	313		
283	311		
251	274		
286	303		
266	263		
256	276		
283	276		

Pretest Gap 317 - 273 = 44	2. Posttest Gap 339 - 294 = 45	3. Gap Reduction 44 - 45 = -1

4. Conversion no.: 100 / 44 = 2.3

5. Converted Pretest 44 x 2.3 = 100	6. Converted Posttest 45 x 2.3 = 103	7. Converted Gap Reduction -1 x 2.3 = -2



Pretest Gap:	44
Posttest Gap:	45
Gap Reduction:	-1
% Gap Reduction:	-2%

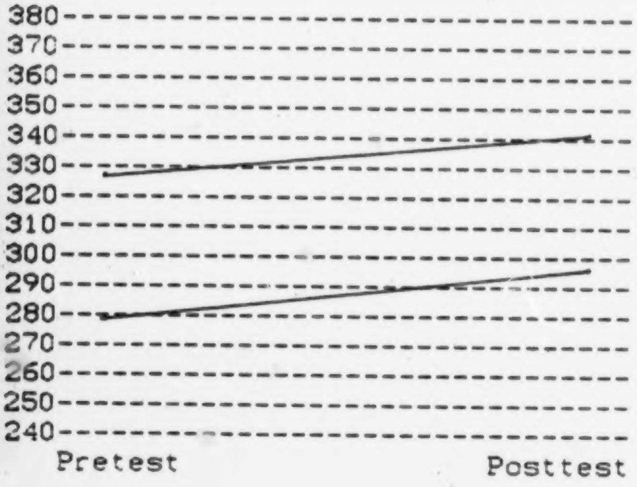
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 6 - Language

Project Group		Comparison Group	
Pretest (10.87) mean = 279	Posttest (4/88) mean = 297	Pretest (6.1) mean = 328	Posttest (6.7) mean = 341
281	342		
294	297		
287	342		
297	314		
253	259		
236	259		
323	363		
294	333		
274	297		
269	269		
320	311		
234	259		
272	269		
278	245		

1. Pretest Gap 328 - 279 = 49	2. Posttest Gap 341 - 297 = 44	3. Gap Reduction 49 - 44 = 5

4. Conversion no.: 100 / 49 = 2.0

5. Converted Pretest 49 x 2.0 = 100	6. Converted Posttest 44 x 2.0 = 88	7. Converted Gap Reduction 5 x 2.0 = 10



Pretest Gap: 49
Posttest Gap: 44
Gap Reduction: 5
% Gap Reduction: 10%

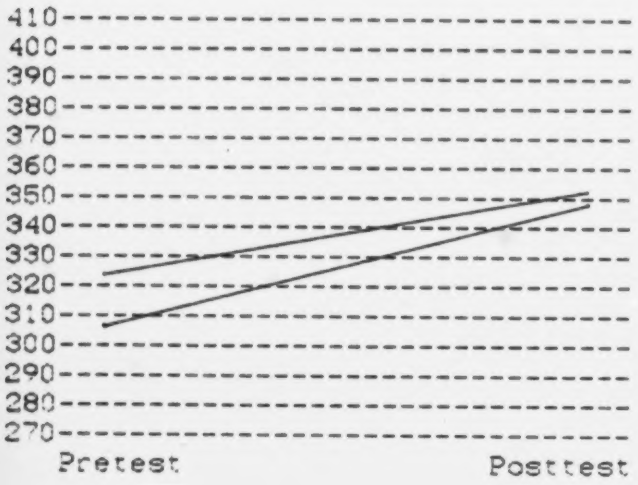
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 6 - Math

Project Group		Comparison Group	
Pretest (10/87) mean = 308	Posttest (4/88) mean = 349	Pretest (6.1) mean = 324	Posttest (6.7) mean = 352
322	407		
322	334		
331	364		
329	380		
247	297		
297	340		
340	424		
329	404		
345	396		
286	300		
317	348		
262	259		
292	327		
292	302		

1. Pretest Gap 324 - 308 = 16	2. Posttest Gap 352 - 349 = 3	3. Gap Reduction 16 - 3 = 13

4. Conversion no.: 100 / 16 = 6.2

5. Converted Pretest 16 x 6.2 = 100	6. Converted Posttest 3 x 6.2 = 19	7. Converted Gap Reduction 13 x 6.2 = 81



Pretest Gap:	16
Posttest Gap:	3
Gap Reduction:	13
% Gap Reduction:	81%

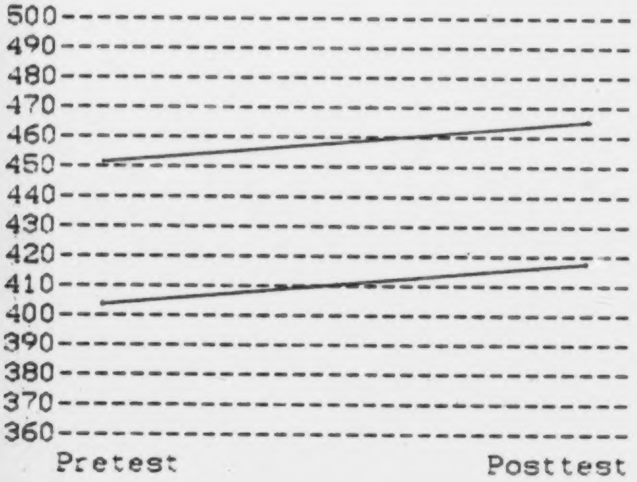
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 9 - Composite

Project Group				Comparison Group	
Pretest (10/87)		Posttest (4/88)		Pretest (9.1)	Posttest (9.7)
mean = 403		mean = 418		mean = 451	mean = 466
394	415	447	470		
450	408	473	408		
341	417	329	422		
429	343	429	354		
515	363	534	383		
376	333	417	363		
333	504	348	504		
361	348	361	331		
361	482	358	536		
343		337			
521		546			
417		417			
387		422			
331		335			
523		562			
369		361			

1. Pretest Gap 451 - 403 = 48
2. Posttest Gap 466 - 418 = 48
3. Gap Reduction 48 - 48 = 0

4. Conversion no.: 100 / 48 = 2.1

5. Converted Pretest 48 x 2.1 = 100
6. Converted Posttest 48 x 2.1 = 100
7. Converted Gap Reduction 0 x 2.1 = 0



Pretest Gap:	48
Posttest Gap:	48
Gap Reduction:	0
% Gap Reduction:	0%

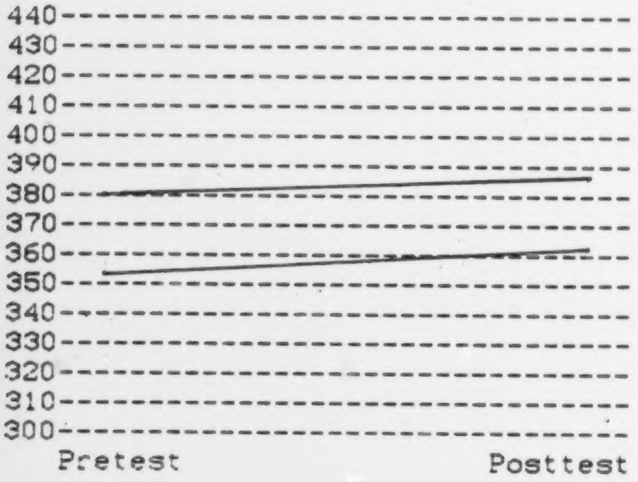
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 9 - Reading

Project Group				Comparison Group	
Pretest (10/87) mean = 353		Posttest (4/88) mean = 362		Pretest (9.1) mean = 380	Posttest (9.7) mean = 387
363	336	397	374		
403	374	413	366		
303	387	303	376		
394	336	394	354		
394	320	408	363		
292	320	356	354		
295	452	327	438		
331	333	324	303		
336	376	327	392		
311		311			
403		413			
379		343			
327		354			
313		299			
411		448			
345		320			

1. Pretest Gap	2. Posttest Gap	3. Gap Reduction
380 - 353 = 27	387 - 362 = 25	27 - 25 = 2

4. Conversion no.: 100 / 27 = 3.7

5. Converted Pretest	6. Converted Posttest	7. Converted Gap Reduction
27 x 3.7 = 100	25 x 3.7 = 93	2 x 3.7 = 7



Pretest Gap:	27
Posttest Gap:	25
Gap Reduction:	2
% Gap Reduction:	7%

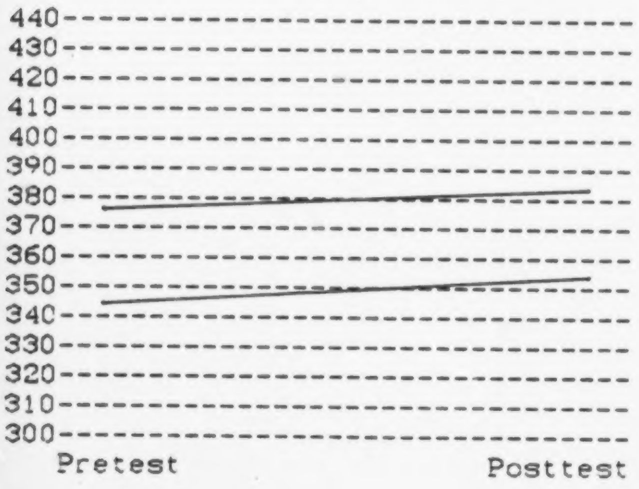
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 9 - Language

Project Group				Comparison Group	
Pretest (10/87) mean = 345		Posttest (4/88) mean = 354		Pretest (9.1) mean = 377	Posttest (9.7) mean = 384
330	358	391	398		
385	323	410	336		
295	339	299	358		
342	295	355	288		
470	310	458	313		
345	285	352	292		
317	404	281	410		
320	281	320	288		
310	388	299	420		
326		307			
436		458			
374		382			
342		358			
302		295			
417		441			
330		333			

1. Pretest Gap	2. Posttest Gap	3. Gap Reduction
377 - 345 = 32	384 - 354 = 30	32 - 30 = 2

4. Conversion no.: 100 / 32 = 3.1

5. Converted Pretest	6. Converted Posttest	7. Converted Gap Reduction
32 x 3.1 = 100	30 x 3.1 = 93	2 x 3.1 = 6



Pretest Gap:	32
Posttest Gap:	30
Gap Reduction:	2
% Gap Reduction:	6%

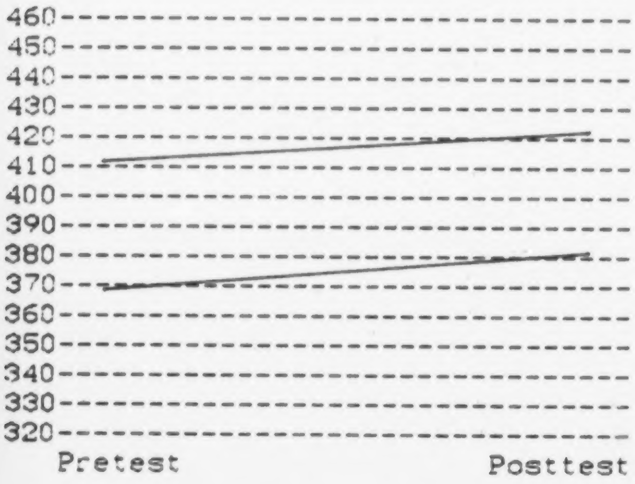
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 9 - Math

Project Group				Comparison Group	
Pretest (10/87)		Posttest (4/88)		Pretest (9.1)	Posttest (9.7)
mean = 369		mean = 381		mean = 411	mean = 422
358	398	364	428		
367	378	373	375		
350	364	321	370		
375	321	364	330		
422	361	458	350		
387	327	387	344		
321	398	352	407		
337	344	341	337		
341	458	355	525		
317		323			
461		482			
341		373			
373		395			
313		344			
478		493			
327		337			

1. Pretest Gap 411 - 369 = 42	2. Posttest Gap 422 - 381 = 41	3. Gap Reduction 42 - 41 = 1

4. Conversion no.: 100 / 42 = 2.4

5. Converted Pretest 42 x 2.4 = 100	6. Converted Posttest 41 x 2.4 = 98	7. Converted Gap Reduction 1 x 2.4 = 2



Pretest Gap:	42
Posttest Gap:	41
Gap Reduction:	1
% Gap Reduction:	2%

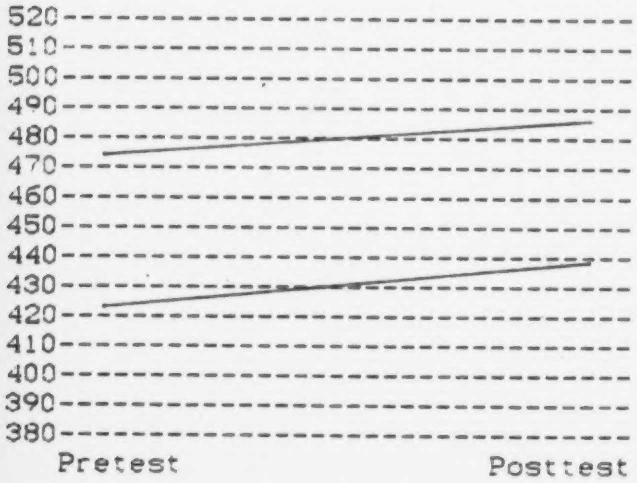
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 10 - Composite

Project Group		Comparison Group	
Pretest (10/87) mean = 423	Posttest (4/88) mean = 439	Pretest (10.1) mean = 475	Posttest (10.7) mean = 487
440	473		
387	394		
352	341		
406	426		
394	381		
495	515		
374	390		
438	461		
374	415		
415	431		
415	475		
390	374		
387	413		
538	560		
538	540		

1. Pretest Gap 475 - 423 = 52	2. Posttest Gap 487 - 439 = 48	3. Gap Reduction 52 - 48 = 4

4. Conversion no.: 100 / 52 = 1.9

5. Converted Pretest 52 x 1.9 = 100	6. Converted Posttest 48 x 1.9 = 91	7. Converted Gap Reduction 4 x 1.9 = 8



Pretest Gap:	52
Posttest Gap:	48
Gap Reduction:	4
% Gap Reduction:	8%

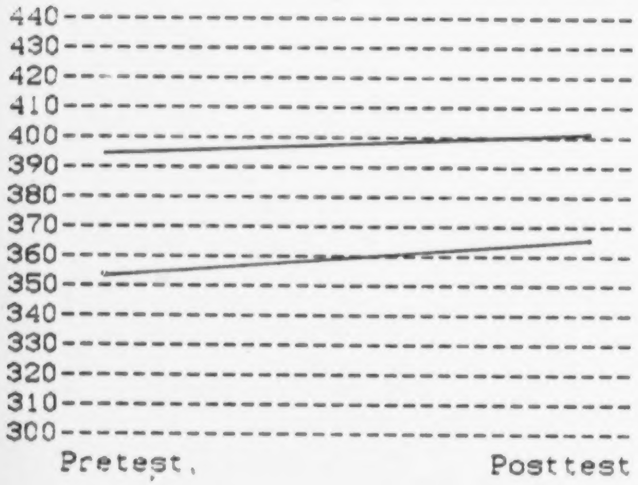
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 10 - Reading

Project Group		Comparison Group	
Pretest (10/87) mean = 353	Posttest (4/88) mean = 367	Pretest (10.1) mean = 395	Posttest (10.7) mean = 401
367	402		
339	355		
333	317		
332	344		
341	320		
367	380		
332	359		
370	391		
332	344		
341	364		
336	380		
332	347		
320	335		
418	433		
433	431		

1. Pretest Gap 395 - 353 = 42	2. Posttest Gap 401 - 367 = 34	3. Gap Reduction 42 - 34 = 8

4. Conversion no.: 100 / 42 = 2.4

5. Converted Pretest 42 x 2.4 = 100	6. Converted Posttest 34 x 2.4 = 82	7. Converted Gap Reduction 8 x 2.4 = 19



Pretest Gap:	42
Posttest Gap:	34
Gap Reduction:	8
% Gap Reduction:	19%

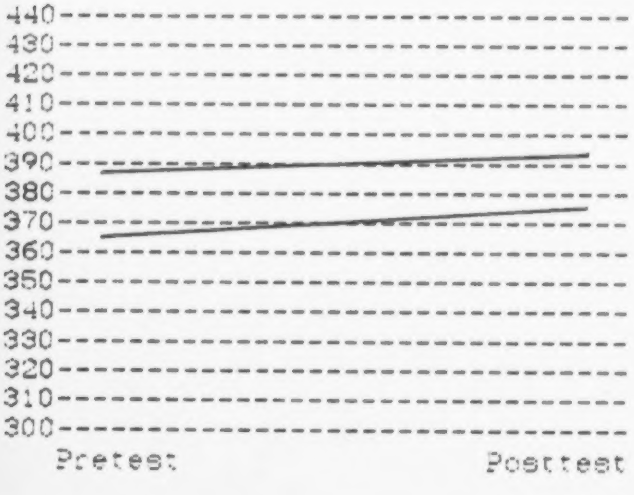
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 10 - Language

Project Group		Comparison Group	
Pretest (10/87) mean = 366	Posttest (4/88) mean = 377	Pretest (10.1) mean = 388	Posttest (10.7) mean = 394
407	427		
352	374		
326	292		
352	355		
348	339		
379	410		
330	320		
382	398		
314	355		
382	391		
358	421		
326	301		
348	371		
452	442		
435	465		

1. Pretest Gap 388 - 366 = 22	2. Posttest Gap 394 - 377 = 17	3. Gap Reduction 22 - 17 = 5

4. Conversion no.: 100 / 22 = 4.5

5. Converted Pretest 22 x 4.5 = 100	6. Converted Posttest 17 x 4.5 = 76	7. Converted Gap Reduction 5 x 4.5 = 22



Pretest Gap:	22
Posttest Gap:	17
Gap Reduction:	5
% Gap Reduction:	22%

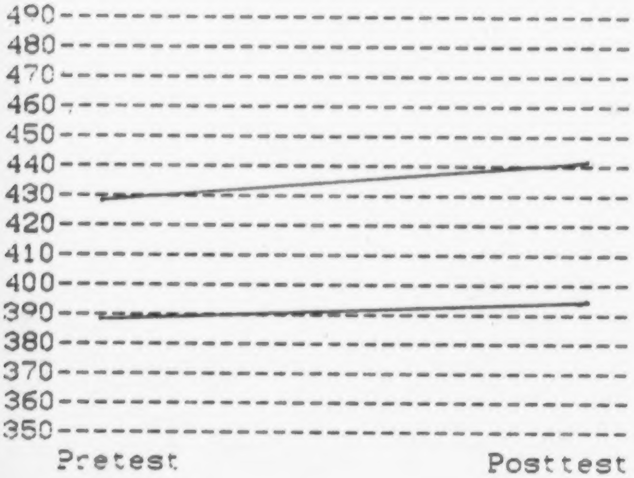
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 10 - Math

Project Group		Comparison Group	
Pretest (10/87) mean = 389	Posttest (4/88) mean = 395	Pretest (10.1) mean = 429	Posttest (10.7) mean = 441
370	370		
350	327		
313	337		
392	416		
361	367		
506	501		
350	361		
384	389		
367	392		
370	370		
398	405		
384	364		
373	384		
461	506		
461	436		

1. Pretest Gap 429 - 389 = 40	2. Posttest Gap 441 - 395 = 46	3. Gap Reduction 40 - 46 = -6

4. Conversion no.: 100 / 40 = 2.5

5. Converted Pretest 40 x 2.5 = 100	6. Converted Posttest 46 x 2.5 = 115	7. Converted Gap Reduction -6 x 2.5 = -15



Pretest Gap:	40
Posttest Gap:	46
Gap Reduction:	-6
% Gap Reduction:	-15%

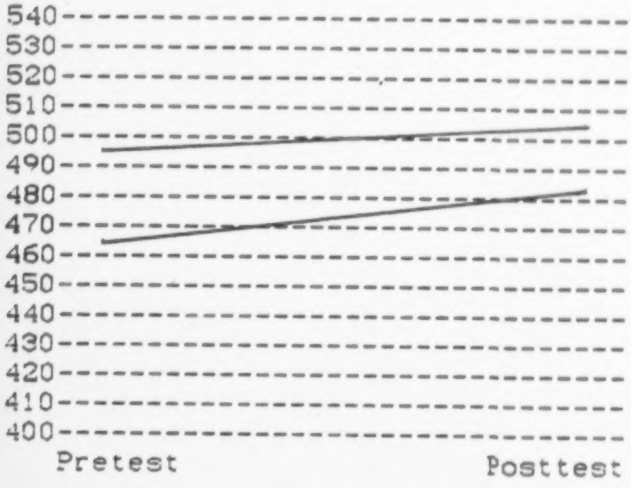
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 11 - Composite

Project Group		Comparison Group	
Pretest (10/87) mean = 465	Posttest (4/88) mean = 483	Pretest (11.1) mean = 496	Posttest (11.7) mean = 505
429	452		
459	457		
436	468		
452	488		
536	574		
429	463		
510	515		
415	459		
424	424		
426	413		
406	433		
413	415		
633	653		
445	463		
568	572		

1. Pretest Gap 496 - 465 = 31	2. Posttest Gap 505 - 483 = 22	3. Gap Reduction 31 - 22 = 9

4. Conversion no.: 100 / 31 = 3.2

5. Converted Pretest 31 x 3.2 = 100	6. Converted Posttest 22 x 3.2 = 70	7. Converted Gap Reduction 9 x 3.2 = 29



Pretest Gap:	31
Posttest Gap:	22
Gap Reduction:	9
% Gap Reduction:	29%

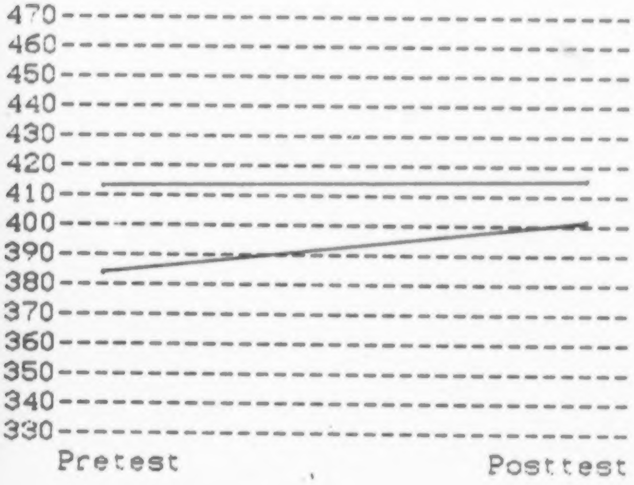
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 11 - Reading

Project Group		Comparison Group	
Pretest (10/87) mean = 383	Posttest (4/88) mean = 401	Pretest (11.1) mean = 412	Posttest (11.7) mean = 416
368	371		
406	403		
339	387		
392	444		
434	472		
359	387		
434	441		
333	376		
353	327		
374	368		
356	376		
348	356		
426	472		
376	387		
441	452		

1. Pretest Gap	2. Posttest Gap	3. Gap Reduction
412 - 383 = 29	416 - 401 = 15	29 - 15 = 14

4. Conversion no.: 100 / 29 = 3.4

5. Converted Pretest	6. Converted Posttest	7. Converted Gap Reduction
29 x 3.4 = 100	15 x 3.4 = 51	14 x 3.4 = 48



Pretest Gap:	29
Posttest Gap:	15
Gap Reduction:	14
% Gap Reduction:	48%

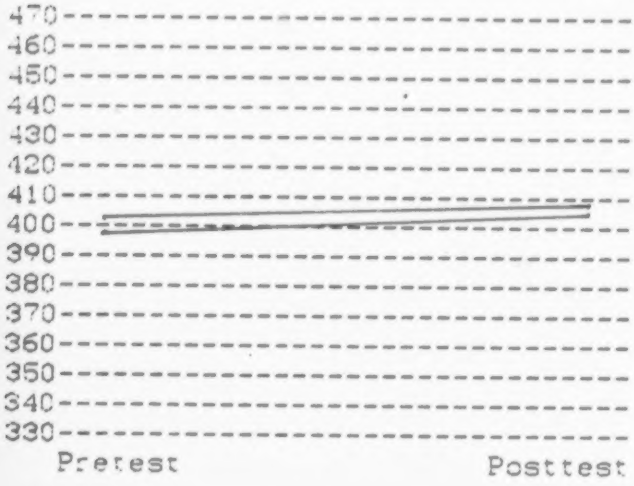
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 11 - Language

Project Group		Comparison Group	
Pretest (10/87) mean = 398	Posttest (4/88) mean = 405	Pretest (11.1) mean = 402	Posttest (11.7) mean = 408
374	352		
395	398		
367	371		
451	436		
388	401		
470	462		
339	361		
330	364		
371	358		
374	407		
348	358		
525	532		
391	417		
451	455		

1. Pretest Gap	2. Posttest Gap	3. Gap Reduction
402 - 398 = 4	408 - 405 = 3	4 - 3 = 1

4. Conversion no.: 100 / 4 = 25

5. Converted Pretest	6. Converted Posttest	7. Converted Gap Reduction
4 x 25 = 100	3 x 25 = 75	1 x 25 = 25



Pretest Gap: 4
Posttest Gap: 3
Gap Reduction: 1
% Gap Reduction: 25%

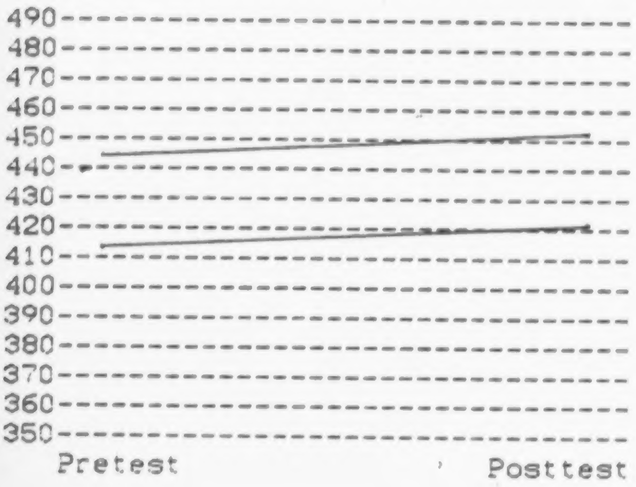
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 11 - Math

Project Group		Comparison Group	
Pretest (10/87) mean = 413	Posttest (4/88) mean = 421	Pretest (11.1) mean = 445	Posttest (11.7) mean = 452
375	437		
373	367		
425	420		
401	404		
439	498		
373	395		
364	375		
420	437		
425	422		
370	361		
347	344		
392	378		
603	592		
381	381		
506	498		

1. Pretest Gap 445 - 413 = 32	2. Posttest Gap 452 - 421 = 31	3. Gap Reduction 32 - 31 = 1

4. Conversion no.: 100 / 32 = 3.1

5. Converted Pretest 32 x 3.1 = 100	6. Converted Posttest 31 x 3.1 = 96	7. Converted Gap Reduction 1 x 3.1 = 3



Pretest Gap:	32
Posttest Gap:	31
Gap Reduction:	1
% Gap Reduction:	3%

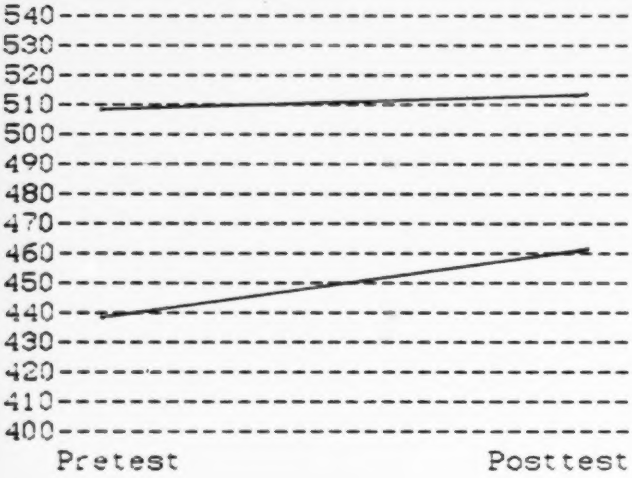
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 12 - Composite

Project Group		Comparison Group	
Pretest (10/87) mean = 439	Posttest (4/88) mean = 461	Pretest (12.1) mean = 509	Posttest (12.7) mean = 514
385	408		
473	542		
519	530		
438	440		
335	343		
484	502		

1. Pretest Gap 509 - 439 = 70	2. Posttest Gap 514 - 461 = 53	3. Gap Reduction 70 - 53 = 17

4. Conversion no.: 100 / 70 = 1.4

5. Converted Pretest 70 x 1.4 = 100	6. Converted Posttest 53 x 1.4 = 74	7. Converted Gap Reduction 17 x 1.4 = 24



Pretest Gap: 70
Posttest Gap: 53
Gap Reduction: 17
% Gap Reduction: 24%

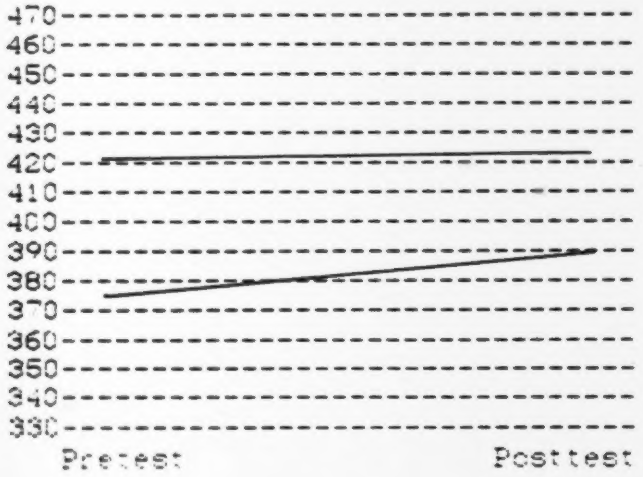
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 12 - Reading

Project Group		Comparison Group	
Pretest (10/87) mean = 375	Posttest (4/88) mean = 390	Pretest (12.1) mean = 421	Postest (12.7) mean = 423
320	330		
393	418		
468	489		
388	393		
293	307		
388	405		

1. Pretest Gap 421 - 375 = 46	2. Posttest Gap 423 - 390 = 33	3. Gap Reduction 46 - 33 = 13

4. Conversion no.: 100 / 46 = 2.2

5. Converted Pretest 46 x 2.2 = 100	6. Converted Posttest 33 x 2.2 = 73	7. Converted Gap Reduction 13 x 2.2 = 29



Pretest Gap: 46
Posttest Gap: 33
Gap Reduction: 13
% Gap Reduction: 29%

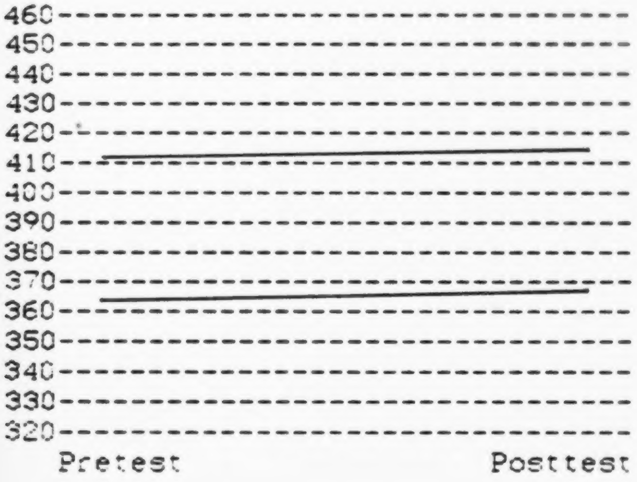
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 12 - Language

Project Group		Comparison Group	
Pretest (10/87) mean = 363	Posttest (4/88) mean = 368	Pretest (21.1) mean = 411	Posttest (12.7) mean = 414
342	320		
385	438		
374	371		
371	377		
307	301		
398	401		

1. Pretest Gap	2. Posttest Gap	3. Gap Reduction
411 - 363 = 48	414 - 368 = 46	48 - 46 = 2

4. Conversion no.: 100 / 48 = 2.1

5. Converted Pretest	6. Converted Posttest	7. Converted Gap Reduction
48 x 2.1 = 100	46 x 2.1 = 97	2 x 2.1 = 4



Pretest Gap:	48
Posttest Gap:	46
Gap Reduction:	2
% Gap Reduction:	4%

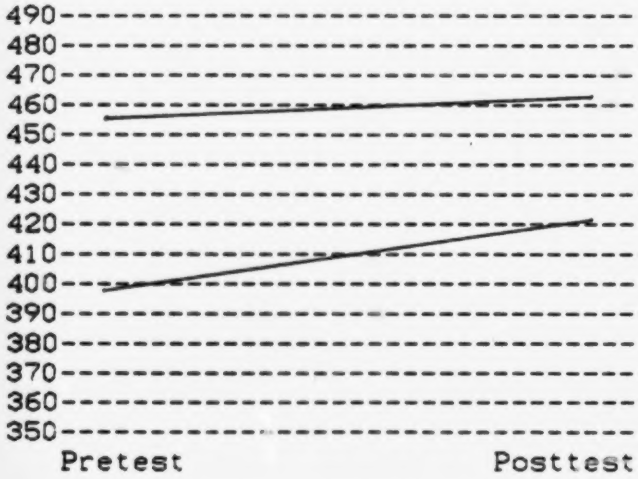
SRA Survey of Basic Skills
Project and Comparison Group Test Results
Grade 12 - Math

Project Group		Comparison Group	
Pretest (10/87) mean = 398	Posttest (4/88) mean = 421	Pretest 12.1) mean = 456	Posttest 12.7) mean = 462
375	431		
422	490		
439	439		
373	367		
340	347		
439	452		

1. Pretest Gap 456 - 398 = 58	2. Posttest Gap 462 - 421 = 41	3. Gap Reduction 58 - 41 = 17

4. Conversion no.: 100 / 58 = 1.7

5. Converted Pretest 58 x 1.7 = 100	6. Converted Posttest 41 x 1.7 = 71	7. Converted Gap Reduction 17 x 1.7 = 29



Pretest Gap:	58
Posttest Gap:	41
Gap Reduction:	17
% Gap Reduction:	29%

APPENDIX L

Table 1

Description of LAS® Oral Production (Story-Retelling) Proficiency Levels

ORAL PRODUCTION LEVEL	PROFICIENCY LEVEL	DESCRIPTION
1	NON SPEAKER	At Level 1, the student produces only isolated words and expressions. While there are some differences across the age groups, they are very slight at this level of performance.
2		At Level 2, a few isolated phrases and fragmented or very simple sentences are produced. Sentences are usually incoherent and may be difficult to associate with the storyline.
3	LIMITED SPEAKER	At Level 3, complete sentences are produced, often with systematic errors in syntax. Sentences are longer and more coherent than in Level 2. The most salient characteristic of Level 3 is that a more or less complete version of the story is produced, although the senteces, while more coherent than in Level 2, may be awkward, and syntactic errors tend to repeat themselves. Thus, while the student may be able to procuce sufficient vocabulary and facts necessary to retell the story, s/he has difficulty in combining the words with the same facility as that of the proficient speaker. It is also not uncommon to find some language mixing at Level 3. It should be noted that one of the more difficult discriminations to make in scoring the Oral Production is between Level 3 and 4 (i.e., limited vs. proficient). It is particularly at this level that the ear of a proficient native speaker is essential.
4	FLUENT (PROFICIENT) SPEAKER	At Level 4, the student produces a complete version of the story in coherent sentences with native-like fluency. While there may be occasional errors in either syntax or vocabulary, these are errors which would not be uncommon among native speakers. The main difference between Level 4 and 5 is that the former is often a more limited version in terms of vocabulary and syntactical complexity.
5		At Level 5, the student produces complete sentences which are coherent, syntactically correct for his/her developmental age, and overall is an articulate, proficient native speaker. Note: The determination of LAS® Levels 4 and 5 (proficient speakers) are based on the criteria of Standard English because of the instructional demands of most classrooms.

(DeAvila & Duncan, 1981, p. 3.)

APPENDIX M

APPENDIX M

LAS ENGLISH/SPANISH TEST RESULTS

(Pretest = Spring, 1986 (Posttest = Spring, 1987)

Raw scores are indicated in parenthesis ( )

Means are derived from matched pre/post scores

GRADE 1

	ENGLISH			SPANISH	
PRETEST	POSTTEST	GAIN/LOSS	PRETEST	POSTTEST	GAIN/LOSS
------	2	------	------	------	------
1	2	+1	4	------	------
1	4	+3	1	------	------
3	2	-1	3	------	------
------	3	------	------	------	------
Mean					
1.6	2.6	+1.0			

GRADE 2

ENGLISH			SPANISH		
PRETEST	POSTTEST	GAIN/LOSS	PRETEST	POSTTEST	GAIN/LOSS
------	3	------	------	------	------
------	3	------	------	5	------
------	4	------	------	------	------
3(71)	3(72)	0(+1)	4	------	------
3	4	+1	4	------	------
3	5	+2	4	------	------
------	3	------	------	------	------
Mean					
3.0	4.0	+1.0	------	------	------

GRADE 3

	ENGLISH			SPANISH		
	PRETEST	POSTTEST	GAIN/LOSS	PRETEST	POSTTEST	GAIN/LOSS
	3	4	+1	5	------	------
	1	4	+3	3	5	+2
	3	4	+1	3	------	------
	3	4	+1	4	------	------
	5(88)	5(90)	0(+2)	------	------	------
	------	4	------	------	------	------
Mean	3.0	4.2	+1.2	3.0	5.0	+2.0

GRADE 4

	ENGLISH			SPANISH		
	PRETEST	POSTTEST	GAIN/LOSS	PRETEST	POSTTEST	GAIN/LOSS
	------	5	------	------	------	------
	------	5	------	------	------	------
	3	4	+1	5	------	------
	------	5	------	------	5	------
	4(89)	4(92)	0(+3)	------	------	------
	2	------	------	4	------	------
	5	4	-1	3	5	+2
	------	4	------	------	------	------
	------	5	------	------	------	------
Mean	4.0	4.0	0	3.0	5.0	+2.0

GRADE 5

ENGLISH			SPANISH		
PRETEST	POSTTEST	GAIN/LOSS	PRETEST	POSTTEST	GAIN/LOSS
3	5	+2	4	------	------
4(78)	4(99)	0(+21)	5	------	------
5	4	-1	5	------	------
------	5	------	------	------	------
------	5	------	------	------	------
------	4	------	------	------	------
Mean					
4.0	4.3	+.33	______	______	______

GRADE 6

ENGLISH			SPANISH		
PRETEST	POSTTEST	GAIN/LOSS	PRETEST	POSTTEST	GAIN/LOSS
2	5	+3	3	------	------
5	------	------	------	------	------
3	5	+2	5	------	------
3	5	+2	5	------	------
------	5	------	------	------	------
------	4	------	------	5	------
5(96)	5(97)	0(+1)	5	------	------
5(90)	5(91)	0(+1)	5	------	------
------	5	------	------	------	------
------	5	------	------	------	------
5	4	-1	5	------	------
------	5	------	------	------	------
3	5	+2	4	------	------
4	5	+1	5	------	------
Mean					
3.7	4.8	+1.1			

GRADE 9

ENGLISH			SPANISH		
PRETEST	POSTTEST	GAIN/LOSS	PRETEST	POSTTEST	GAIN/LOSS
4(89.2)	4(89.6)	0(+.4)	NO SPANISH SCORES		
------	3	------			
5(92)	5(94)	0(+2)			
5	5	0			
------	5	------			
------	3	------			
------	3	------			
3	4	+1			
------	2	------			
4(95)	4(97)	0(+2)			
------	4	------			
------	4	------			
5(91)	5(93)	0(+2)			
3	4	+1			
4	------	------			
4(85)	4(90)	0(+5)			
4(88)	4(90)	0(+2)			
------	3	------			
1	2	+1			
5(92)	5(94)	0(+2)			
Mean 3.9	4.1	+.27			

GRADE 10

ENGLISH			SPANISH		
PRETEST	POSTTEST	GAIN/LOSS	PRETEST	POSTTEST	GAIN/LOSS
5(98)	5(100)	0(+2)	NO SPANISH SCORES		
3(76)	3(79)	0(+3)			
------	4	------			
4	5	+1			
4(87)	4(88)	0(+1)			
------	5	------			
4	5	+1			
3(76)	3(77)	0(+1)			
Mean					
3.8	4.1	+.33			

GRADE 11

ENGLISH			SPANISH		
PRETEST	POSTTEST	GAIN/LOSS	PRETEST	POSTTEST	GAIN/LOSS
4(89)	4(91)	0(+2)			
------	5	------			
5(88)	5(92)	0(+4)			
------	4	------			
1	2	+1			
5(90)	5(98)	0(+8)			
5(89)	5(90)	0(+1)			
2	4	+2			
Mean					
3.6	4.1	+.50			

GRADE 12

ENGLISH			SPANISH		
PRETEST	POSTTEST	GAIN/LOSS	PRETEST	POSTTEST	GAIN/LOSS
5	------	------	NO SPANISH SCORES		
2(76)	2(80)	0(+4)			
4(89)	4(90)	0(+1)			
Mean					
3.0	3.0	0			